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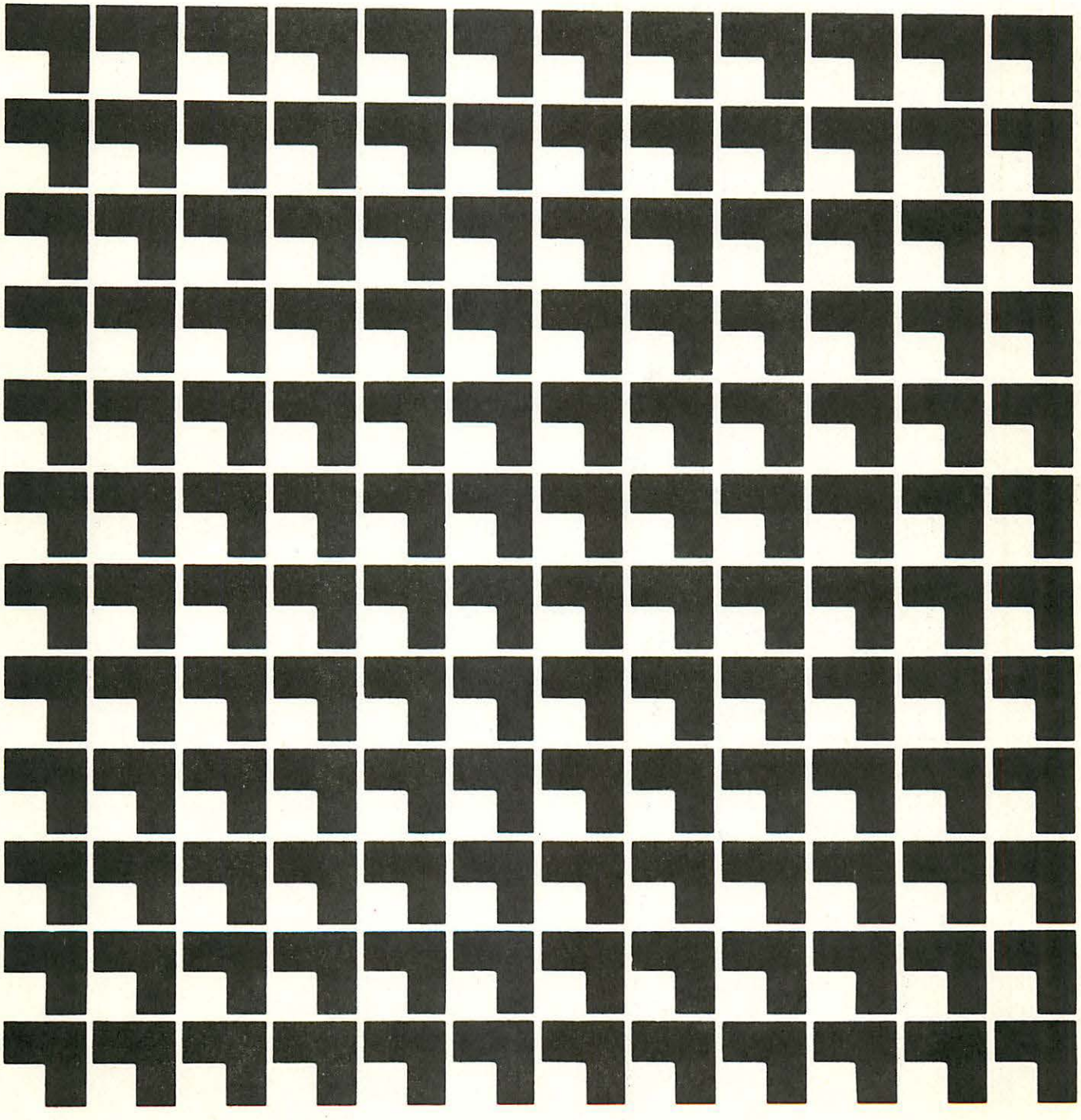
Instructional Systems Paradigm - Governors State University

Instructional Systems Paradigm Task Force

GOVERNORS STATE UNIVERSITY
PARK FOREST SOUTH, ILL.

Instructional Systems Paradigm



An

Instructional Systems Paradigm

For

Governors State University

Prepared by the Instructional Systems Paradigm
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ABSTRACT

The Instructional Systems Paradigm (ISP) was developed by a University-wide Task Force in response to a charge from the University Assembly to develop a paradigm that would, among other things, "... provide some elaboration of the sequence of steps necessary for relating degree, program and module objectives ..." and "... serve as the primary and substantive model and guide for curriculum development processes in each of the colleges, where the unique characteristics of collegial programs will be correlated with the University-wide mandates."

Although the document is quite detailed and lengthy, its primary thrust can be summarized as follows:

> The Educational Planning Guidelines serve as a base for all subsequent activities. The College Guidelines evolve out of the Educational Planning Guidelines. The Instructional Program Guidelines, in turn, are based on the College Guidelines; the Area of Emphasis Guidelines are based on the Instructional Program Guidelines; and the Learning Modules are based on the Area of Emphasis Guidelines.

The paradigm makes the above statement a policy position. Further, most of the material included in the ISP document can properly be viewed as supplementary in that it is presented solely as a means of accomplishing the task described above. A Glossary of terms is included for the purpose of reducing semantic confusion.

The detailed approach was taken because curriculum development is a rigorous and complex endeavor. If the paradigm had been a global statement such as the summary paragraph above, then some faculty might legitimately have asked for more explicit directions. For many, the detailed directions will prove to be unnecessary. For others, the explicitness of the document serves as a reminder of the intellectual rigor involved and the true complexity of the task. The ISP will serve as a guide to all who are developing curriculum at the various levels within the University.

The Instructional Systems Paradigm builds enough flexibility into the system to accommodate the variety of teaching and learning styles which exist at GSU. It is not intended to be a "straitjacket" for instructional development. It is, however, an approach to instructional development that will coordinate the efforts of the entire GSU Community toward the attainment of the University goals.

MANDATE TO THE ISP TASK FORCE

At the GSU University Assembly Meeting of September 7, 1972, the Chairman of the Standing Committee on Educational Policies and Programs (SCEPP), moved that Research and Innovation take the leadership in establishing an Instructional Systems Paradigm (ISP) for the University at large. The statement as passed by the University Assembly, is reproduced below.

> "That R & I be charged to use the expertise of the university staff to establish immediately an Instructional Systems Paradigm for the University at large.
>
> An Instructional Systems Paradigm for Governors State University should provide and describe the structural framework for, and functional relationships between, all of the philosophical mandates and their real-world mechanisms. It should be a comprehensive document that defines, tentatively and for purposes of experimentation, such terms as unit, module, competency, primary performance objective, individualization, technology of instruction, interdisciplinary, intercollegial, etc., etc.
>
> The ISP should also provide some elaboration of the sequence of steps necessary for relating degree, program and module objectives, and for specifying the various levels of objectives in appropriate modes. It should provide some guidelines for the evaluation of process competencies as opposed to content knowledge competencies and demonstrate how instruction might feasibly be organized around problem-solving activities.
>
> The ISP should inform the entire University with regard to how each instructional unit and supporting process fits into the framework or design for overall evaluation and how these relate to the needs, characteristics and aspirations of GSU students.
>
> The ISP should, when completed, serve as the primary and substantive model and guide for curriculum design and development processes in each of the colleges, where the unique characteristics of collegial programs will be correlated with the university-wide mandates.
>
> It should be the purpose of the planning group to use all available expertise and input from the colleges and support units in developing, reviewing, and validating the Instructional Systems Paradigm before it is submitted to the University at large for adoption."

In fulfilling the charge, the Research and Innovation Wing organized an ISP Task Force. This document is the product of the Task Force efforts.

INTRODUCTION

The pages which follow represent a working draft of an Instructional Systems Paradigm (ISP) for Governors State University. The ISP was designed for the express purpose of serving as the "... primary and substantive model and guide for curriculum design and development processes in each of the colleges ..." All components of the ISP are subject to continuous evaluation, and appropriate revisions to the ISP will be made following an initial year of operation.

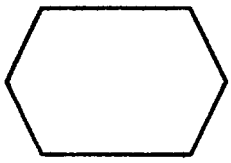
An understanding of certain procedures and terms is essential to a complete understanding of the ISP. Therefore, the reader is urged to carefully consider the following paragraphs.

The most critical section of the ISP is the Glossary of Terms. During the weekly meetings that stretched over a period of five months, the ISP Task Force was constantly handicapped by semantic confusion that resulted from an absence of common definition of terms. The definitions stipulated in the Glossary represent numerous compromises by the fifteen members of the Task Force, and therefore it is important that they be read carefully. It is recognized that in some instances these definitions represent goals toward which the University is striving. Interpretation of terminology by definitions other than those stated will make use of the ISP difficult if not impossible.

The format and numbering system used by the ISP Task Force were selected by consensus. The procedure closely approximates the system presented in Educational Systems Planning (Kaufman, 1972). Appendix B of An Instructional Systems Paradigm and Its Implementation (Cleaver, 1972) served as the point of reference from which the ISP was developed. Copies of these documents as well as all other reference material used during the develpment of the ISP are available at Research and Innovation.

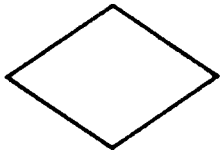
Generally speaking, the ISP consists of a series of general systems and sub-systems. The general system categorizations are designated numerically as 1.0, 2.0, 3.0, 4.0, 5.0. Each of the general systems is composed of at least one sub-system (i.e., 1.1, 1.2, 2.1, 2.2, etc.).

Graphically, the ISP can be understood in terms of the following symbols:



For purposes of the ISP, this symbol indicates that a sub-system (explaining the process within this general system) is defined in a subsequent section of the document. As an illustrative example, the statement "2.0 Develop College Guidelines," when enclosed by the symbol indicated, can be interpreted as follows: the general task is to develop College Guidelines. However, the ISP also contains designated sub-systems (i.e., "2.1 Perform Needs Assess," "2.2 Determine College-Level Objectives," etc.) that provide more information on how this task might be completed.

A rectangle indicates that this is the final level of specificity offered by the Task Force. The rest of the document contains narrative which expands upon the meaning of the activity identified in each rectangle.



The diamond-shaped symbol indicates a decision point. This is the evaluation process for the ISP. Each time this symbol is contained in the paradigm, the user must exercise evaluative judgment as to whether or not the various components of the system or sub-system are congruent. If incongruence among previous steps is identified, the process within the appropriate system(s) is repeated. When congruence exists among all prior components of the ISP, the user proceeds as indicated.

This symbol is an off-page connector. It simply indicates that the user continues the process on another page and re-enters the system at the number designated.

A solid arrow is used to link symbols, and shows direction and sequence of the process.

A dotted arrow simply indicates feedback from one activity to another. Of course, informal feedback among all components of the system occurs constantly.

Finally, it was the intent of the ISP Task Force to build enough flexibility into the system to accommodate the variety of teaching and learning styles inherent in GSU. The ISP is not intended to be a "straitjacket" for instructional development, nor an infringement on academic freedom. It is however, an approach to instructional development that will coordinate the efforts of the entire GSU community toward the efficient attainment of the university goals.

GLOSSARY OF TERMS
for
Instructional Systems Paradigm

AREA OF EMPHASIS (AOE) - A concentration of related competencies within an Instructional Program. An Area of Emphasis differs from a traditional "department" in that it is defined by a specified list of competencies that students are expected to attain.

COLLEGE - The only academic division in the University. At the date of this report, there are four relatively autonomous colleges, each to be limited in size to approximately 1500 students. The absence of departments is intended to promote interdisciplinary studies within and between the colleges. Each college is defined in terms of a unique set of College-Level Objectives.

COLLEGE-LEVEL OBJECTIVES - A general statement of objectives/goals that have been derived from the Educational Planning Guidelines, and that serve as parameters for curriculum development within the respective colleges. College-Level Objectives for each of the four GSU Colleges are listed in Appendix B.

COMPETENCY - A behavior or pattern of behavior related to real world knowledge, skills, and/or attitudes that the student will demonstrate he has acquired. The specificity and breadth of a competency statement depends on whether it is for an Instructional Program, Area of Emphasis, or Learning Module. Examples of competency statements on each level of specificity are contained in Appendix C.

CONGRUENCE - Throughout the ISP, the term congruence refers to the process of checking for inconsistencies among activities involved in curriculum development.

COORDINATOR - This is the term given to faculty members who are involved in instruction within a learning module. The term "coordinator" is used instead of "professor" or "instructor" and indicates the new role a faculty member assumes in the learning process at Governors State.

EVALUATION - A comparison of expected outcomes with actual outcomes, and the incorporation of appropriate revisions to bring the two closer together.

INSTRUCTIONAL OBJECTIVE - A behavior, contributing to a competency, to be attained through a specific series of instructional events, and to be exhibited at a level and under conditions indicated by specified criteria. Examples of Instructional Objectives are contained in Appendix C.

INSTRUCTIONAL PROGRAMS - A major subdivision within the College that contains the following characteristics: (1) it has been approved by the Board of Governors, (2) it consists of one or more related Areas of Emphasis, and (3) it is defined by competencies that its students will attain. (All of the Instructional Programs at GSU are identified in Section 3.0. Sample Instructional Program Competency statements are contained in Appendix C.)

Glossary of Terms
(Cont.)

INSTRUCTIONAL SYSTEM - A set of learning experiences designed to enable a specified population to attain stated competencies. It is developed according to the instructional development process outlined in this ISP.

INTERCOLLEGIAL - The concept whereby students are encouraged to register for Learning Modules across Collegial Lines. The Educational Planning Guidelines state that faculty and students in different collegiate units will cooperatively plan, develop and execute learning experiences of this type.

INTERDISCIPLINARY - The concept of organization that prevails within the Colleges. This approach does not recognize the departmental system nor rank faculty according to academic discipline. The Educational Planning Guidelines refer to "interdisciplinary" as an emphasis on programs of study that encourages the synthesis of knowledge from the disciplines within a collegiate unit.

INTERDISCIPLINARY STUDIES CONTEXT (ISC) - In the College of Cultural Studies, this term is used synonymously with Instructional Program.

LEARNING MODULE - The Learning Module is a set of experiences which brings the student to the achievement of one or more specific and discrete competencies. Ideally, it is the smallest "package" of instructional strategies and materials in which all aspects of an individualized, performance-based, criterion referenced instructional model can be identified. Such a model will include instructional objectives, materials, and strategies for instruction and evaluation. A Learning Module will include topics or concepts belonging to a larger subject-matter context. A Learning Module at GSU, under current administrative procedures, will yield one or more GSU units of credit. (Learning Modules may include Self-Instructional Materials.)

PRIMARY PERFORMANCE OBJECTIVE - No longer used at GSU. For an approximation of how this term was used previously, see Instructional Objective.

SELF-INSTRUCTIONAL MATERIALS (SIM) - A set of learning experiences designed to enable a specified population to attain stated competencies. They employ self-instructional strategies (under the guidance of a Coordinator) that enable students to learn through the use of pre-programmed materials and tests and that provides feedback as to whether or not the objectives are being met. The materials enable students to attain module competencies at their own pace, and at flexible times and places. (These materials may be part of a Learning Module.)

SESSION - A time period of approximately two months. There are six sessions during the calendar year with four sessions comprising the equivalent of a traditional academic year.

OVERVIEW OF THE ISP

Figure A (next page) is a graphic overview of the Instructional Systems Paradigm (ISP). Each of the components of the overview is defined and explained in detail within the text of the report.

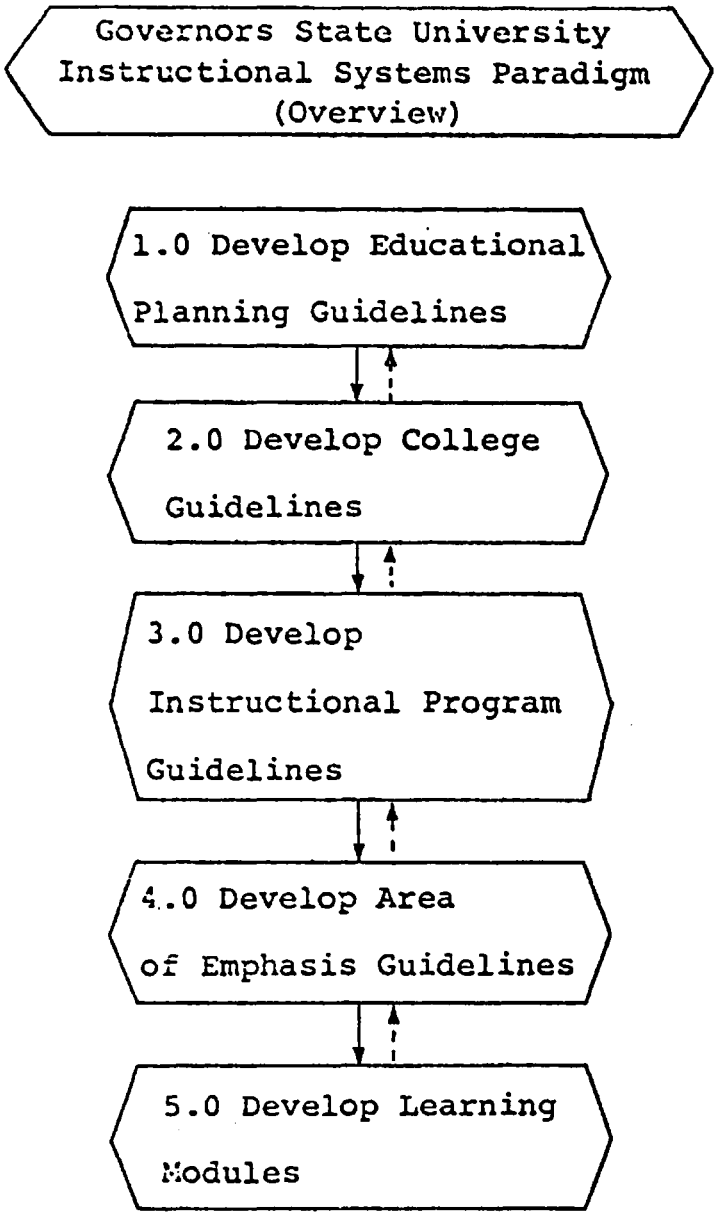
As indicated, the Educational Planning Guidelines serve as the foundation of the ISP. The solid arrows indicate that the components are to be completed in sequential order (i.e., 1.0 must be completed prior to development of 2.0, etc.). The dotted lines represent feedback between each of the components.

Figure A may be interpreted as follows: The Educational Planning Guidelines serve as a base for all subsequent activities. The College Guidelines evolve out of the Educational Planning Guidelines. The Instructional Program Guidelines, in turn, are based on the College Guidelines; the Area of Emphasis Guidelines are based on the Instructional Program Guidelines; and the Learning Modules are based on the Area of Emphasis Guidelines.

The pages which follow, provide an outline for completing the activities implied within each of the sub-systems of the ISP. Appendix A contains the design for formative evaluation of the Instructional Systems Paradigm.

Responsibility for each of the tasks in the ISP is indicated by the text on the right hand of the page. This emphasizes that not all persons are responsible for all portions of the ISP. Although it is desirable that each Learning Module Coordinator initially review the entire ISP process, in practice the major focus for curriculum development will be on those persons/committees appointed.

Figure A


Governors State University
Instructional Systems Paradigm
(Overview)
Responsibility
1.0 Develop Educational Planning Guidelines
GSU Planning Team and Illinois Board of Higher Education
2.0 Develop College Guidelines
Administrative/Planning Staff of the Respective Colleges
3.0 Develop Instructional Program Guidelines
Faculty Committees for the Respective Instructional Programs
4.0 Develop Area of Emphasis Guidelines
Committee of Learning Module Coordinators from Each Area of Emphasis
5.0 Develop Learning Modules
Learning Module Coordinator(s)
Feedback Line

1.0 Develop Educational Planning Guidelines

Figure B presents a sub-system that will assist in the development of Educational Planning Guidelines.

1.1 Performs Needs Assessment. This function is performed by the persons who are responsible for making decisions about the very nature and existence of the institution. In the case of Governors State University, the needs assessment was conducted by the Illinois Board of Higher Education, in cooperation with the State of Illinois. The findings of the needs assessment are reflected in the Master Plans and the Report on New Senior Institutions of the Illinois Board of Higher Education.

1.2 Determine University Objectives. Based upon the finding of the needs assessment, the University planners determine the University objectives. In the case of Governors State University, the planning staff borrowed ideas and concepts developed by the professional staff, its consultants, advisory committees and potential students.

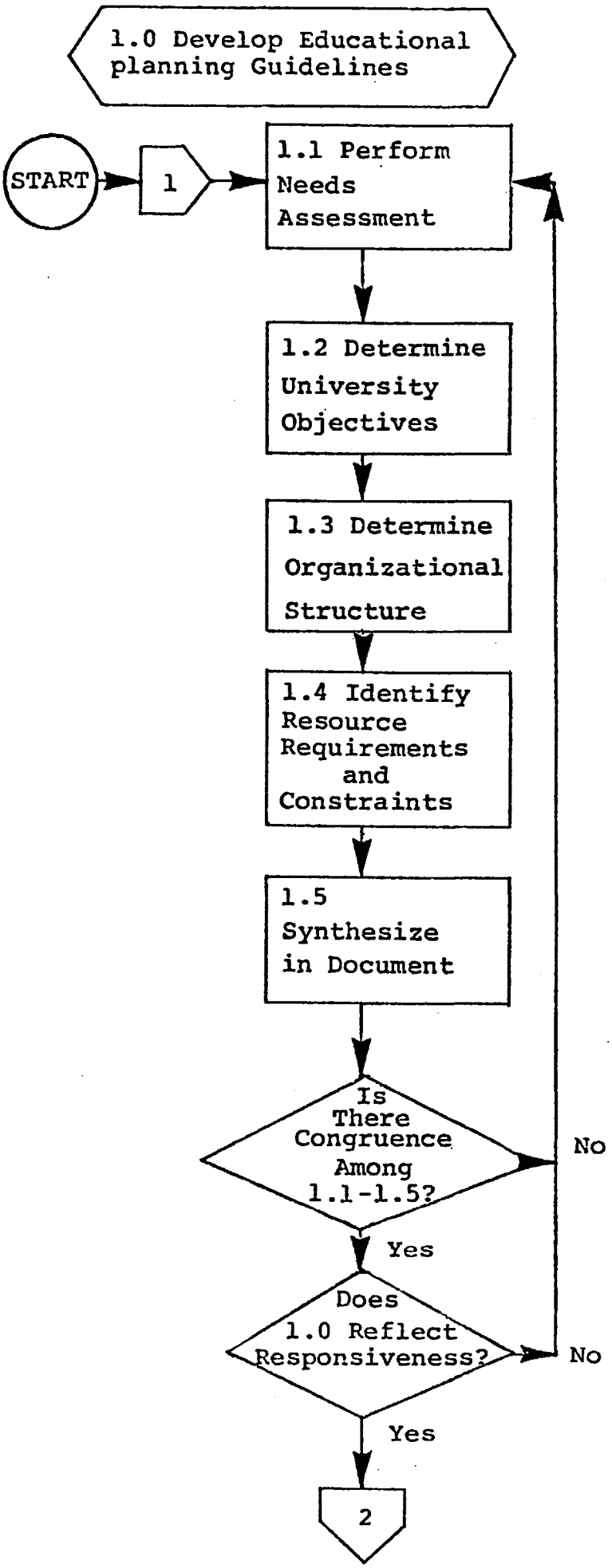
Additionally, the Midwest Research Office of Educational Testing Service completed a Delph-like survey of educational needs, purposes, goals, and means which included over 1200 persons in the Chicago metropolitan area, Illinois, and the nation. The four major action objectives of GSU evolved during and from these processes.

The University objectives guide the planning, development, and implementation of the instructional, research, and community service programs, and internal support systems of Governors State University. The most specific objectives of units within the University are to be directly related to the action objectives and, thus, to society's needs. The Governors State University Action Objectives, as stated, are:

1. Job Efficiency
Every student has a right and responsibility to expect that her/his full engagement in the higher education process will result in the acquisition and/or improvement of marketable skills, attitudes, and values, regardless of whether her/his occupational professional goals are immediate or long-range. Ours is an economic society and the road to participation within it and the power to change and improve it widen through higher education.

2. Functional Citizenship
Every student has a right and responsibility to participate directly, or through representation, in those systematic institutionalized policies and practices which affect her/his life and learning. The University is to provide an environment of participatory democracy that insures the student's full engagement in the University. This provides an opportunity to prepare for functioning in a wider community and is an expression of the human right to involve one's self in one's own destiny.

Figure B


1.0 Develop Educational planning Guidelines
START
1
1.1 Perform Needs Assessment
1.2 Determine University Objectives
1.3 Determine Organizational Structure
1.4 Identify Resource Requirements and Constraints
1.5 Synthesize in Document
Is There Congruence Among 1.1-1.5?
No
Yes
Does 1.0 Reflect Responsiveness?
No
Yes
2

3. Intra and Interpersonal Relationships
Every student has a right and responsibility to develop to her/his fullest poetntial. The sense of individual dignity and worth is to be cultivated by every action of the University. This requires a learning environment which strengthens open, accepting and understanding human relationships. Since healthy self-concepts evolve in social settings, recognition of an individual's rights carries with it the responsibility to recognize and accept the rights of other individuals and groups.

4. Cultural Expansion
Every student has a right and a responsibility to seek an appreciation and use of the fine arts and humanities as a countervailing force to depersonalization and as an expander of the capacity to enjoy and enhance the quality of human life. The students and University serve each other and the community as culture carriers, studying and reflecting the intricacies, problems, joys, and expressions of all cultures and subcultures.

1.3 Determine Organizational Structure. The organizational structure of the University should be determined by the planning staff with the University Objectives as a reference point. The purpose of the organizational structure should be to provide the most effective arrangement for achieving the University Objectives. Among the crucial concerns to be considered in this process are:

1. The definition of tasks and responsibility
2. The establishment of lines of communication
3. The establishment of planning and evaluation procedures
4. Creation of an organizational chart for the University that has built in the flexibility necessary to accommodate a high degree of change, individualization, and involvement in new and pressing social issues.

1.4 Identify Resource Requirements and Constraints. If the Educational Planning Guidelines are to be successfully implemented, it will be necessary for the planning staff to realistically consider resource requirements and constraints. The process of determining existing conditions and resources will provide information to help organize the management procedures referred to above. Needless to say, this activity is not done independently of any of the steps in the development of the Educational Planning Guidelines.

1.5 Synthesize in Document. The results of the processes of Performing Needs Assessment (1.1), Determining University Objectives (1.2), Determining Organizational Structure (1.3), and Identifying Resource Requirements and Constraints (1.4) will result in a pool of data that will form the basis for all future institutional policies. Consequently, this information should be synthesized into a document that can serve as a "reference handbook" for the staff. At Governors State University this document has been published as an historical document under the title of Governors State University Educational Planning Guidelines.

Is there Congruence among 1.1-1.5? This is the evaluation process for system 1.0. It is at this stage that the University Planning Staff identifies any incongruencies among the findings of the prior processes. If incongruence exists, the process is recycled beginning with component 1.1. When no incongruencies are apparent, the planning staff proceeds to the next stage.

Does 1.0 Reflect Responsiveness to the Needs of the Community? It is this question that permits the University to remain unusually responsive to the human, social, and educational needs of the people of Illinois who are to be served by GSU. The persistent reevaluation of the extent to which the institution is responding to its community creates a built-in mechanism for change. When the answer to this question is negative, it will be necessary to reinitiate the entire process of Developing Educational Guidelines. If the answer to the question is positive, the Educational Planning Guidelines are used as the basis for developing the College Guidelines.

2.0 Develop College Guidelines

Figure C presents a model for development of College Guidelines. At the date of this report, the Educational Planning Guidelines provide for the following four colleges: Business and Public Service, Cultural Studies, Environmental and Applied Sciences, Human Learning and Development.

2.1 Perform Needs Assessment Based on Educational Planning Guidelines. The Educational Planning Guidelines specify the general framework within which the Colleges will be developed. It then becomes the responsibility of the administrative staff of each of the respective Colleges to perform an assessment which will identify needs and characteristics of the specific segment of the University student body that it will be serving.

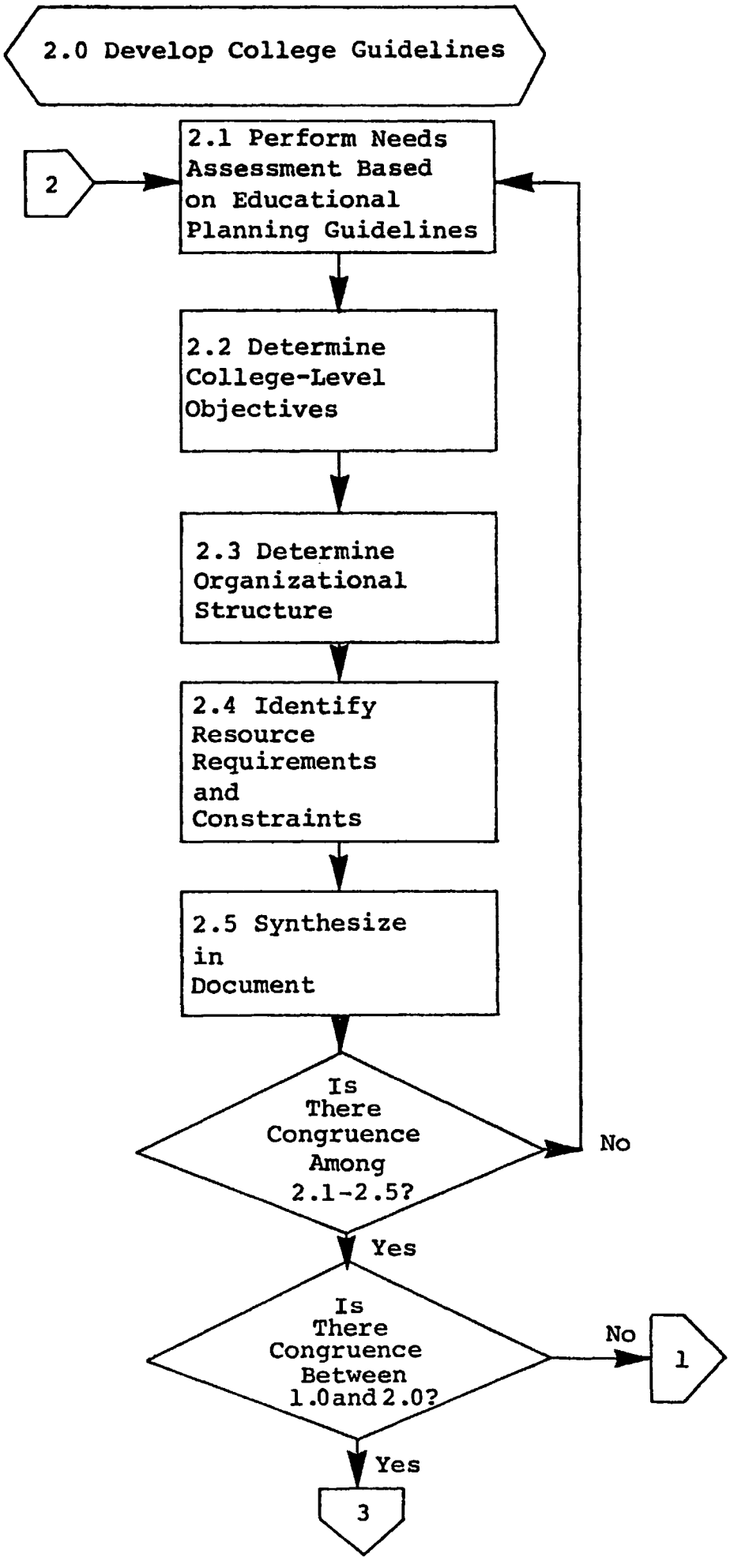
2.2 Determine College-Level Objectives. Based upon the needs assessment conducted by the College, the staff must determine the specific objectives that the College will attempt to achieve. The Educational Planning Guidelines provide the direction to initiate this task. Although the unique characteristics of the College may dictate various methods for arriving at Objectives, the crucial point is that they be well stated and used as a reference for development of the College Guidelines and Instructional Programs. Appendix B contains all GSU College-Level Objectives as they were stated at the date of this report.

2.3 Determine Organizational Structure. The organizational structure of the College should be determined by the College-Level Planning Staff oriented according to the College Guidelines. The organizational structure should afford effective achievement of the College Guidelines. This process should consider the following crucial concerns:

1. Definition of responsibility and tasks
2. Establishment of adequate lines of communication
3. Creation of evaluation and planning procedures
4. Establishment of a College organizational chart with an inherent flexibility accommodating a high degree of change, individualization, and involvement in novel and critical social issues.

2.4 Identify Resource Requirements and Constraints. For the successful implementation of the Educational Planning Guidelines, College-Level resource requirements and constraints must be realistically considered. Determination of existing conditions and resources will provide necessary data for the execution of the above task which is clearly dependent on all the other processes in the development of the Governors State University Educational Planning Guidelines.

Figure C


2.0 Develop College Guidelines
2
2.1 Perform Needs Assessment Based on Educational Planning Guidelines
2.2 Determine College-Level Objectives
2.3 Determine Organizational Structure
2.4 Identify Resource Requirements and Constraints
2.5 Synthesize in Document
Is There Congruence Among 2.1-2.5?
No
Yes
Is There Congruence Between 1.0 and 2.0?
No
1
Yes
3

2.5 Synthesize in Document. The results of the processes of Performing Needs Assessments (2.1), Determining College-Level Objectives (2.2), Determining Organizational Structure (2.3), and Identifying College-Level Resource Requirements and Constraints (2.4), will provide a pool of data on which all future college-level policies will be established. These data should be synthesized into a document that will serve as a reference for the entire university community.

Is There Congruence Among 2.1-2.5? The College-Level Planning Staff identifies any incongruencies among the results of the prior tasks. In the case of an incongruence, the process is recycled beginning with component 2.1. Otherwise the planning staff proceeds to the next stage.

Is there Congruence Between 1.0 and 2.0? The Dean and the Vice President of Academic Affairs identify any incongruencies among the results in the processes for system 1.0 and for system 2.0. In the case of incongruence, the process is recycled beginning with component 1.1. If not, continue.

3.0 Develop Instructional Program Guidelines

Figure D presents a model for development of Instructional Program Guidelines. At the date of this report, the respective College Guidelines provide for the following Instructional Programs:

Business & Public Service
- Business Administration - B.A., M.A.
- Business Education - B.A., M.A.
- Public Service - B.A., M.A.

Cultural Studies*
- Area Studies - B.A., M.A.
- Ethnic Studies - B.A., M.A.
- Socio-Cultural Processes - B.A., M.A.
- Ideas in Culture - B.A., M.A.
- Invention and Creativity - B.A., M.A.
- Language and the Human Condition - B.A., M.A.
- Popular Culture - B.A., M.A.

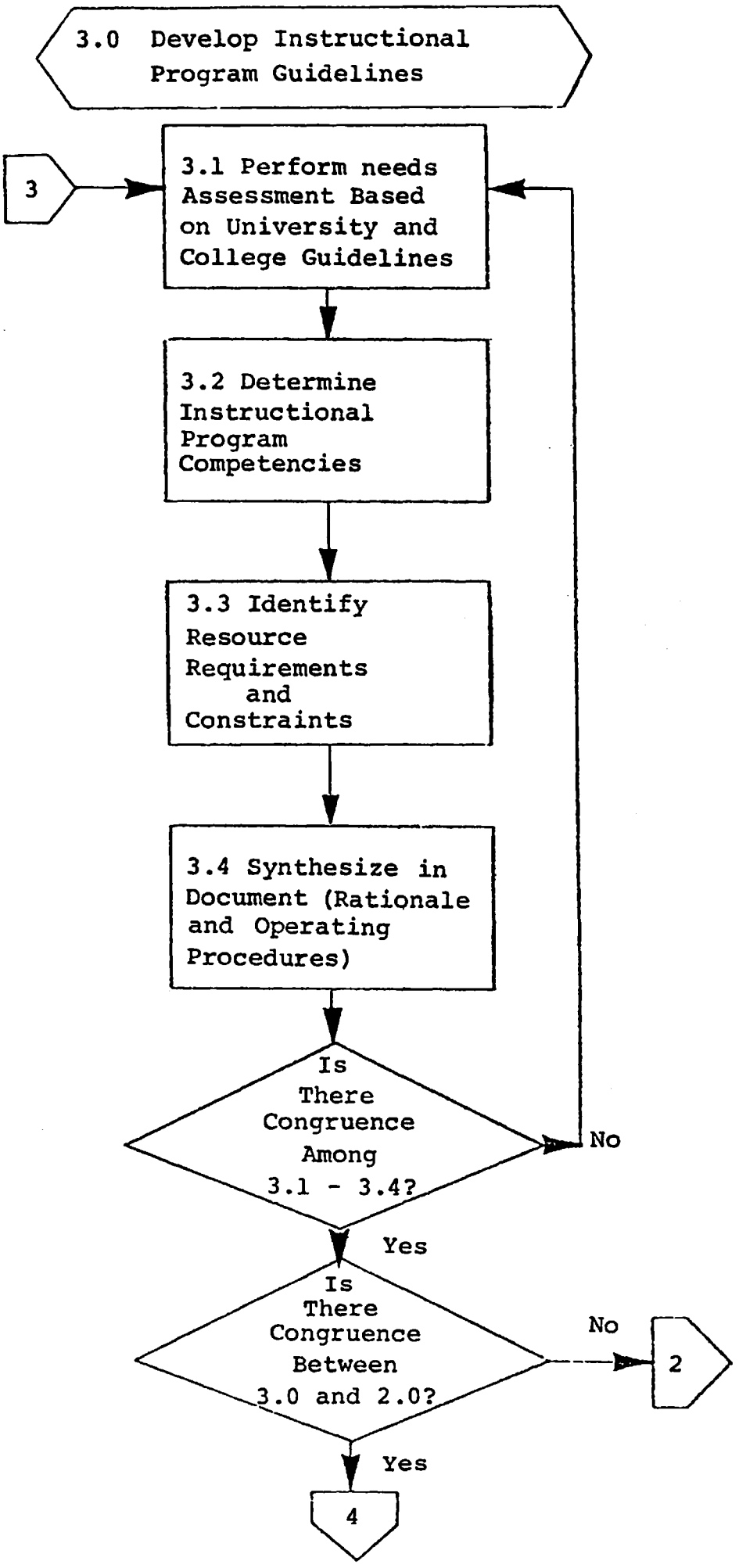
Environmental & Applied Sciences
- Science - B.A., M.A.
- Science Teaching - B.A., M.A.
- Health Science - B.A., M.A.

Human Learning & Development
- Urban Teaching Education - B.A., M.A.
- Human Services - B.A.
- Behavioral Studies - B.A.
- Human Relations Services - M.A.
- Communication Science - B.A., M.A.

3.1 Perform Needs Assessment Based on University and College Guidelines. The needs assessment made at the University and College levels provide a framework for performing a needs assessment for each instructional program. The Faculty and College Administration in this step must assess the specific range and level of each of the programs that will meet the needs and aspirations of definable segments of the college student population.

*Note: The terms Instructional Program and Interdisciplinary Study Context (ISC) are synonymous for purposes of the ISP.

Figure D.


3.0 Develop Instructional Program Guidelines
3
3.1 Perform needs Assessment Based on University and College Guidelines
3.2 Determine Instructional Program Competencies
3.3 Identify Resource Requirements and Constraints
3.4 Synthesize in Document (Rationale and Operating Procedures)
Is There Congruence Among 3.1 - 3.4?
No
Yes
Is There Congruence Between 3.0 and 2.0?
No
2
Yes
4

3.2 Determine Instructional Program Competencies. Based on the needs assessment completed in 3.1, the faculty in this step must determine the specific competencies for each program that students are to achieve.

The instructional program competencies shall be defined as a minimum number of required module competencies expressed in credit units. Examples of competency statements are contained in Appendix C.

3.3 Identify Resource Requirements and Constraints. For implementation of each instructional program this step requires that the college planning staff realistically consider their resource requirements which are constrained by both the current and future funds, facilities, faculties, and students.

3.4 Synthesize a Document of Procedures. The information and data gathered as a result of the required processes in step 3.1 "Needs Assessment," 3.2 "Instructional Program Competencies," and 3.3 "Resource Requirements and Constraints" should now be synthesized in a document that will serve as a "reference book" for the staff of the colleges and each instructional program.

Is There Congruence Among 3.1-3.4? The faculty evaluating the development of programs should, at this stage, identify congruencies among the findings of prior processes. If incongruencies exist, the process should be recycled beginning with 3.1. If there are no incongruencies, the faculty proceeds to the next stage.

Is There Congruence Between 3.0 and 2.0? In this step, the planning staff must ask itself whether the resultant guidelines for the Instructional Programs (3.0) are congruent with the (2.0) College Guidelines. If they are not then go back to 2.0 and recycle. If they are congruent, then proceed to system 4.0.

4.0 Develop Area of Emphasis Guidelines

Figure E presents a model for development of Area of Emphasis Guidelines. The Instructional Program Guidelines provide the general framework for Development of Areas of Emphasis. At the date of this report, the Areas of Emphasis at Governors State University are in the process of review and reformulation.

4.1 Perform Needs Assessment Based on University, College and Program Guidelines. A need may be defined generally as the situation which occurs when what is actually happening is below that which is expected. For the Area of Emphasis component of the GSU-ISP, a need is the situation which occurs when student performance is below or different from that which is indicated by the University, College, and program guidelines. The needs assignment should specifically assist the collegial unit to do the following:

a. Establish guidelines for the development of the AOE competency statements.
b. Determine parameters within which competencies may be obtained, i.e., standardized tests, modules, Co-op Education, prior experiences, etc.
c. Assess the fiscal, physical and human resources needed to achieve these competencies.
d. Inventory existing resources and check for compatibility.

The following steps are suggested as one way of performing an AOE needs assessment:

Step I - Make a careful study of the University objectives, collegial objectives, and program competencies for the purpose of identifying and defining key factors and related variable which will have a direct influence on the AOE competency statements.

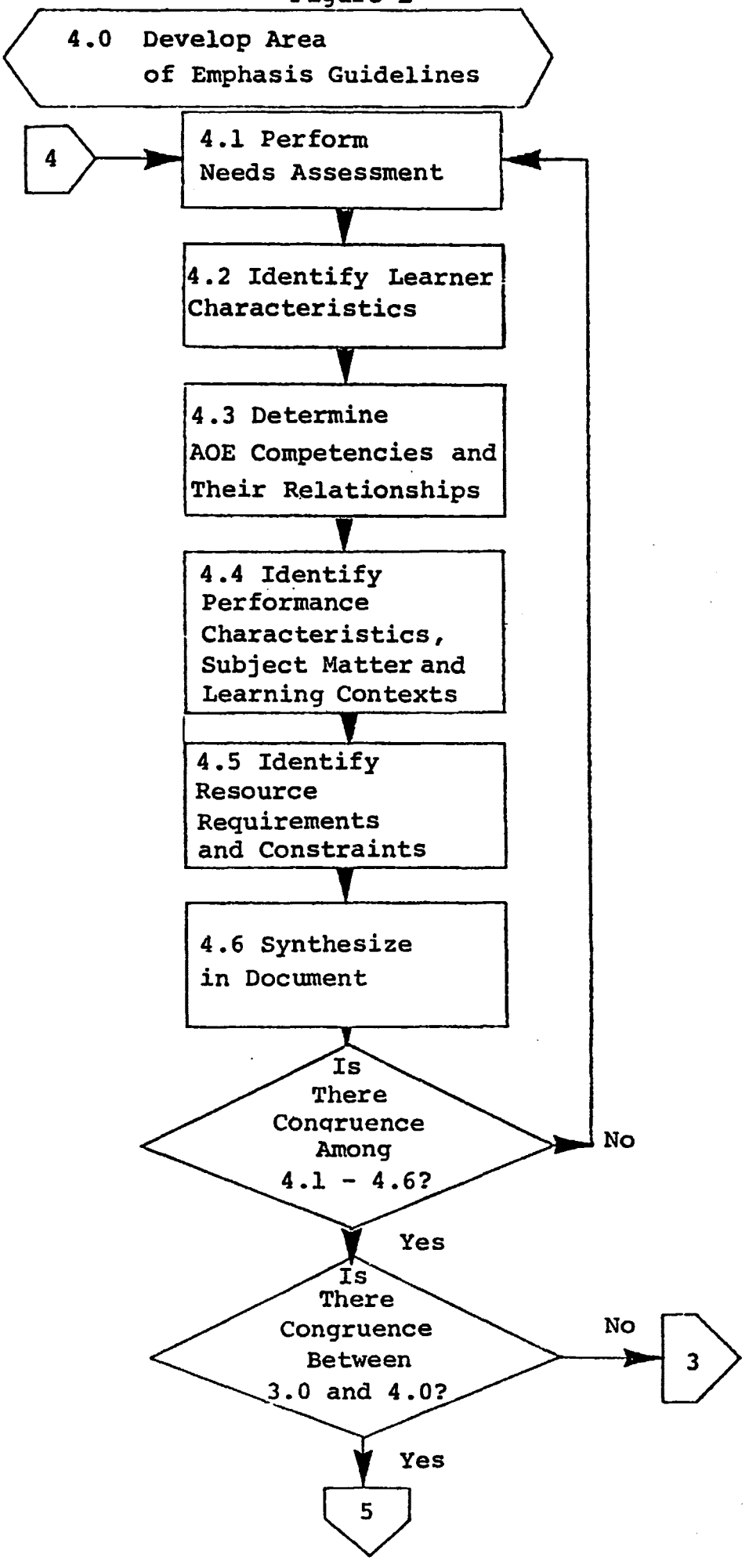
Step II - Establish a format to be used in writing AOE competency statements which uses the factors and variables previously defined and which establishes adequate levels of specificity and proficiency.

Step III - (To be completed after competency statements are written) - Evaluate AOE competency statements to determine which are not being met according to specified proficiency levels (these are the AOE competency needs).

Step IV - (To be completed after step 4.4) - Determine what is needed with regard to resources to achieve the competencies which are not being met by comparing needed resources with existing resources. (The AOE resource needs are those which are not available.)

Step V - Assess present parameters in which competencies are being achieved. Judgments should be made regarding adequacy or inadequacy of existing practices. AOE needs would be those which are adequate or appropriate for competencies but which are not being employed.

Figure E


4.0 Develop Area of Emphasis Guidelines
4
4.1 Perform Needs Assessment
4.2 Identify Learner Characteristics
4.3 Determine AOE Competencies and Their Relationships
4.4 Identify Performance Characteristics, Subject Matter and Learning Contexts
4.5 Identify Resource Requirements and Constraints
4.6 Synthesize in Document
Is There Congruence Among 4.1 - 4.6?
No
Yes
Is There Congruence Between 3.0 and 4.0?
No
3
Yes
5

4.2 Identify Learner Characteristics. In order to effectively develop Area of Emphasis competencies and learning modules related to those competencies, it is necessary to know a great deal about the students that the Area of Emphasis will serve. Clearly, not all students in an Area of Emphasis will be the same, they will however, probably fall into groups based on the learning characteristics such as the following: age, sex, race or ethnic background, socio-economic background of family, influences and experiences outside school, achievements in Area of Emphasis, attitude toward school, interpersonal relationships, extra-curricular activities, self-image, physical health, emotional health, vocational interests.

4.3 Determine Area of Emphasis Competencies and Their Sequential Relationships. Areas of Emphasis competencies must be consistent with the flow from the objectives of the collegial program under which they are subsumed. All competencies, therefore, must be referenced to the broader, more general program competencies and objectives from which they proceed. The Area of Emphasis competencies should more explicitly and specifically state those behaviors, skills, attitudes and knowledge which are expected in the student. These competencies should be so stated that they are attainable and so that modules and other learning options may be designed to enable the student to achieve them.

The following steps are suggested in defining these competencies:

Step I - Determine the inherent logical structures within the area of emphasis, e.g., content/skill/methodology/terminology/ research method.

Step II - Cluster competencies around the logical divisions within the area.

Step III - Synthesize competencies within a document, pattern the competencies into appropriate clusters and into proper sequences.

4.4 Identify Performance Characteristics, Subject Matter and Learning Contexts. Each Area of Emphasis within the University is unique because of some particular relationship to, or focus upon, a limited sphere of human operations or functions in the society. Curriculum Guidelines for the University and the Colleges provide a base upon which each Area of Emphasis should:

1. Develop its own specific mandates for designing instruction that will assure students the opportunity to develop and demonstrate a particular set and range of performance skills that are consistent with the competencies specified for the Area of Emphasis.

2. Provide substantive criteria for the screening and selection of subject matter that is most appropriate to the Area of Emphasis. conceptual framework.

3. Suggest and define the types and range of learning contexts that are most appropriate to development of the performance skills in relation to the subject matter that is the focus of the Area of Emphasis.

The criteria thus established provide a basis for review of Learning Modules to determine their appropriateness as well as their effectiveness in achieving the competency objectives of the Area of Emphasis.

4.5 Identify Resource Requirements and Constraints. The steps to accomplish this task are as follows:

Step I - Inventory available resources.

Step II - Assess the fiscal, physical and human resources needed to achieve the competencies.

Step III - Identify resources not available by comparing needed resources with available resources.

Step IV - Determine if needed resources can be obtained (constraints exist regarding those needed resources which cannot be made available).

4.6 Synthesize in Document Form. Prepare a collegial AOE document which includes the following for each Area of Emphasis:

1. Rationale
2. Competency statements
3. Parameters within which competencies may be obtained
4. A description of operational procedures related to the AOE

Is There Congruence Among 4.1-4.6? If no, recycle the process beginning with 4.1 until there is congruence. If yes, proceed.

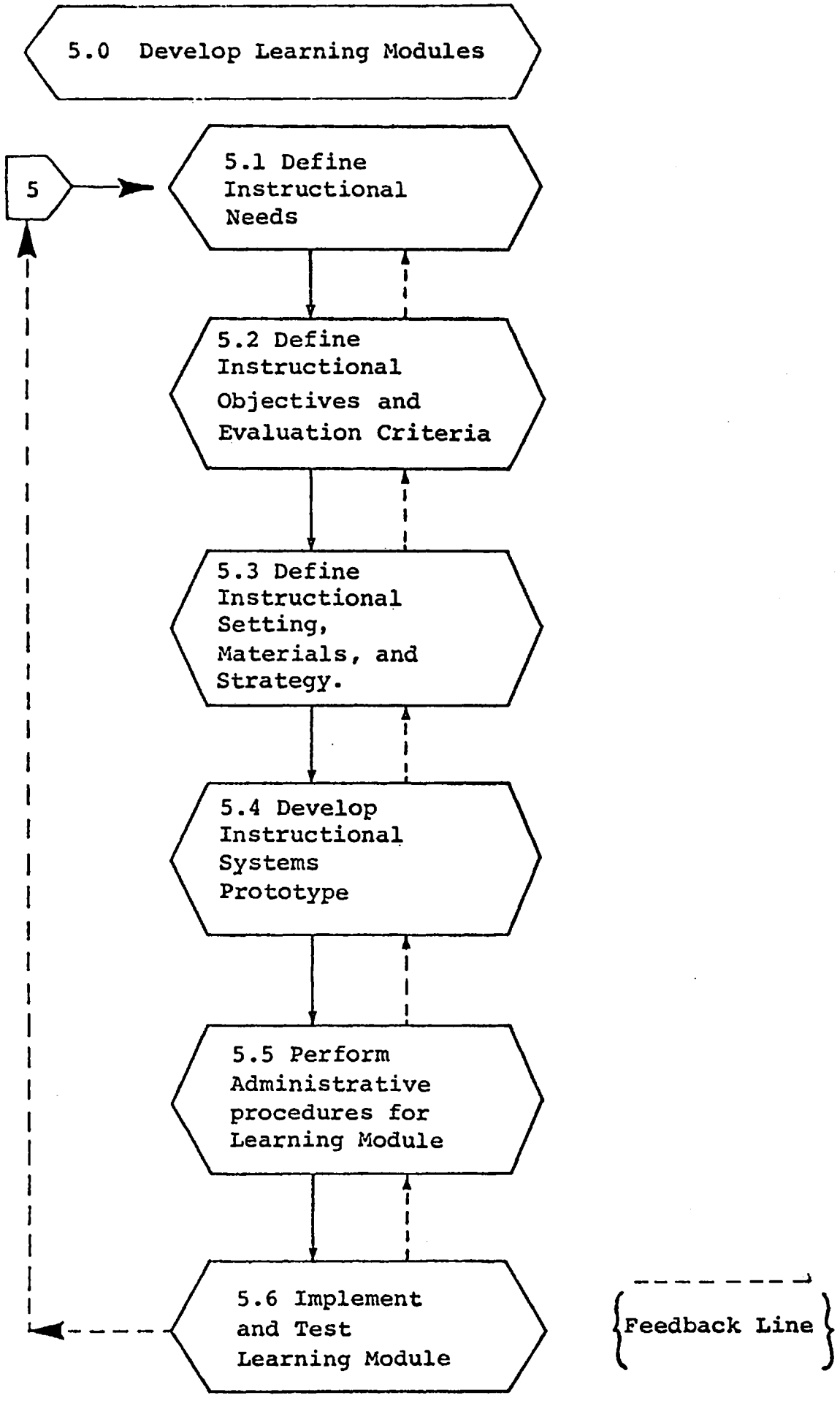
Is There Congruence Between 3.0 and 4.0? If there is not congruence between the Instructional Program and Area of Emphasis Guidelines, the process must start over beginning with 3.0. If no incongruencies are identified, proceed to System 5.0.

5.0 Develop Learning Modules

The Learning Module is a set of experiences which brings the student to the achievement of one or more specific and discrete competencies. Ideally, it is the smallest discrete "package" of instructional strategies and materials in which all aspects of an individualized, performance-based criterion referenced instructional model can be identified. Such a model will include instructional objectives, materials, and strategies for instruction and evaluation. A Learning Module will usefully approximate or include a single topic or concept belonging to a larger subject-matter context. A Learning Module at GSU, under current administrative procedures, will yield one or more GSU units of credit.

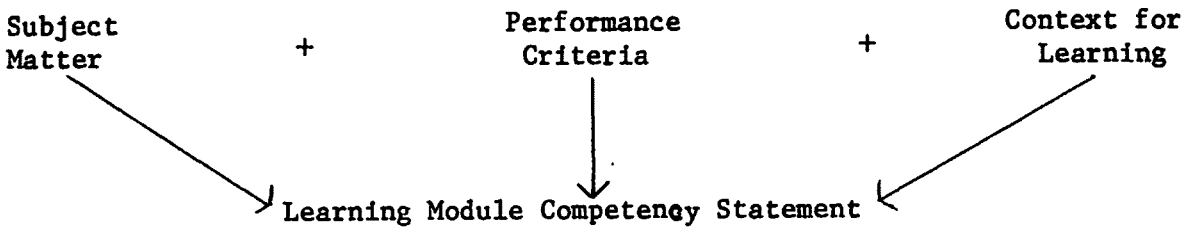
Development of Learning Modules follows the establishment of the conceptual framework for the area of emphasis and the resulting specification of subject matter topics or concepts, performance characteristics and learning contexts that are appropriate to the area of emphasis. Development of Learning Modules then proceeds through the several discrete steps in the sub-system designated as 5.1 through 5.7. The logical sequence includes: Definition of Instructional Needs, Definition of Instructional Objectives and Evaluation Criteria, Definition of Instructional Setting and Strategy, Development of Instructional Prototype, Performance of Required Administrative Procedures, and implementation of the Instructional System for the Learning Module.

Figure F


5.0 Develop Learning Modules
5
5.1 Define Instructional Needs
5.2 Define Instructional Objectives and Evaluation Criteria
5.3 Define Instructional Setting, Materials, and Strategy.
5.4 Develop Instructional Systems Prototype
5.5 Perform Administrative procedures for Learning Module
5.6 Implement and Test Learning Module
Feedback Line

5.1 Define Instructional Needs

5.1.1 Relate Needs Assessment Outcomes. Assemble data from assessments of learner characteristics, and from program and area of emphasis guidelines. Using this data, determine the basis upon which terminal competencies for the modules will be selected and assigned.



5.1.2 Define Rationale. State the basis upon which subject matter, performance criteria and learning contexts were selected and established for the Learning Module and from which the competency statements were derived. Describe any unique characteristics or emphases that have been chosen for the Learning Module that relate to the program or Area of Emphasis guidelines.

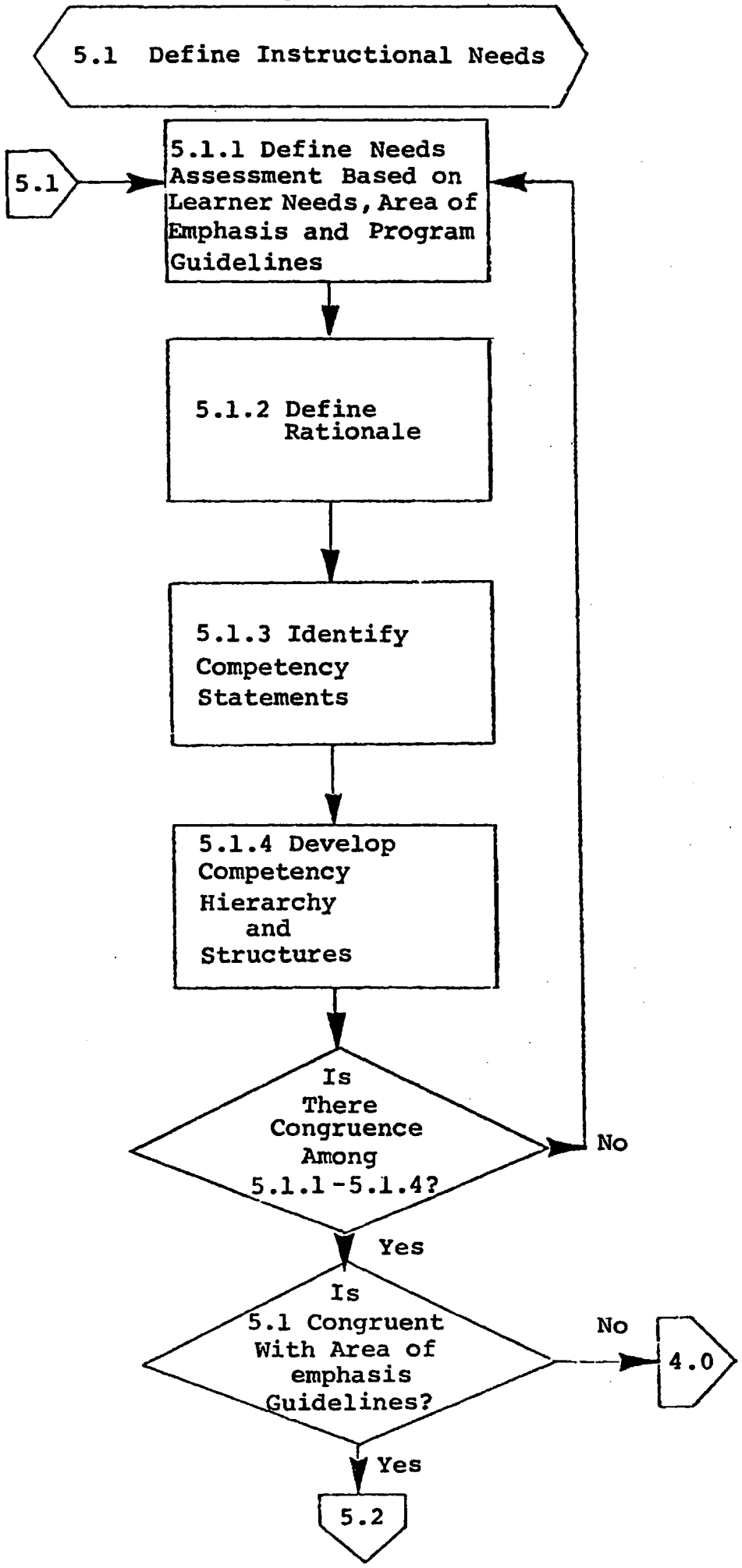
5.1.3 Identify Competency Statements for the Learning Module. Identify the competencies that the student will have attained at the completion of the module. For examples of Learning Module Competency Statements, refer to Appendix C. If prerequisite competencies are required, they should be identified at this time.

5.1.4 Develop Competency Hierarchy and Structures. Determine if there is a preferred or optional sequence based on pre-requisite conceptual knowledge, performance skills or other bases. Develop a flow-chart to represent and/or describe the sequence or other bases.

Is There Congruence Among 5.1.1-5.1.4? If yes, proceed. If no, revise 5.1.1-5.1.4 as needed for congruence.

Is There Congruence Between 5.1 and Area of Emphasis Guidelines? If yes, proceed to 5.2. If no, revise as needed for congruence.

Figure G


5.1 Define Instructional Needs
5.1
5.1.1 Define Needs Assessment Based on Learner Needs, Area of Emphasis and Program Guidelines
5.1.2 Define Rationale
5.1.3 Identify Competency Statements
5.1.4 Develop Competency Hierarchy and Structures
Is There Congruence Among 5.1.1 - 5.1.4?
No
Yes
Is 5.1 Congruent With Area of emphasis Guidelines?
No
4.0
Yes
5.2

5.2 Define Instructional Objectives and Evaluation Criteria

5.2.1 Define Instructional Objectives. An Instructional Objective specifically describes where, how, with what, and to what criterion standard a student performance is expected to occur. Data from assessment of student characteristics that has been developed in 4.0 should serve as a reference for development of instructional objectives. For examples of Instructional Objectives refer to Appendix C.

5.2.2 Validate Instructional Objectives. The Coordinator will determine in advance of the trial, to whatever degree is reasonable, that there is a valid relationship between the Instructional Objectives task and the terminal competency described for the Learning Module. Validity is determined by the degree of relatedness of subject matter and/or behavior to the Learning Module Competency Statement.

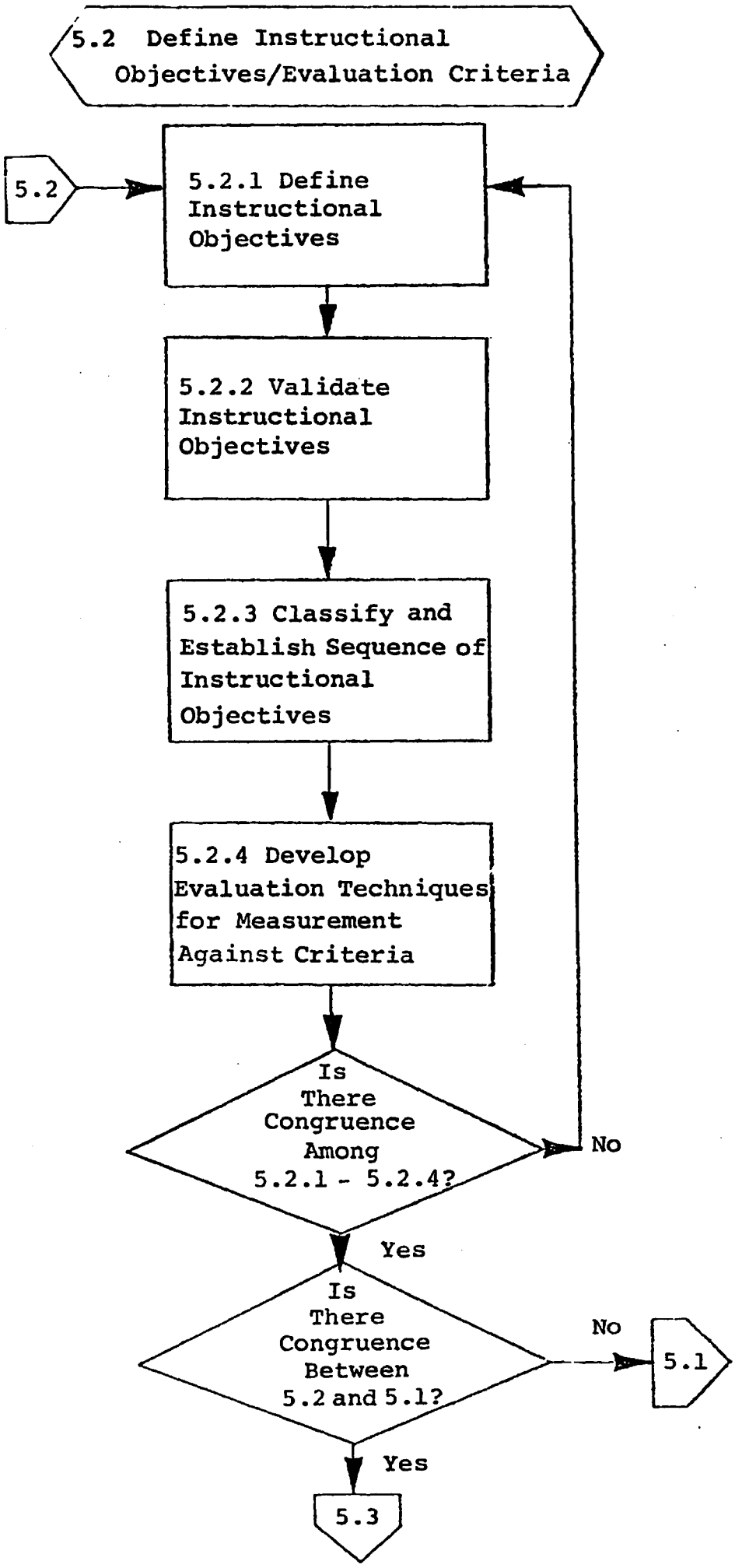
5.2.3 Classify and Establish Sequence of Instructional Objectives. Classify Instructional Objectives into Learning Domains (i.e., cognitive, affective, psycho-motor) and identify level within each domain. The Coordinator will determine if prerequisite knowledge or skill exist among instructional objectives chosen for the module that prescribes a sequence. If so, the Coordinator will construct a flow-chart and/or description of that sequence for the student.

5.2.4 Develop Evaluation Techniques for Measurement Against Criteria. The Coordinator will develop means and procedures to (a) assess entry-level competencies that predict success in the Learning Module, (b) measure the level of achievement prescribed by the instructional objectives and (c) validate the relationship predicted between the instructional objective and the terminal competency.

Is There Congruence Among 5.1.1-5.1.5? If yes, continue. If no, revise 5.1.1-5.1.5 to establish congruence.

Is There Congruence Between 5.1 and 4.0? If yes, go to 5.2. If no, revise 5.1 to establish congruence.

Figure H


5.2 Define Instructional Objectives/Evaluation Criteria
5.2
5.2.1 Define Instructional Objectives
5.2.2 Validate Instructional Objectives
5.2.3 Classify and Establish Sequence of Instructional Objectives
5.2.4 Develop Evaluation Techniques for Measurement Against Criteria
Is There Congruence Among 5.2.1 - 5.2.4?
No
Yes
Is There Congruence Between 5.2 and 5.1?
No
5.1
Yes
5.3

5.3 Define Instructional Setting, Materials, and Strategies

5.3.1 Review Learner Characteristics based on prior needs assessment and specify relationship between learner characteristics and instructional materials.

5.3.2 Identify Setting, Resources and Constraints. The Coordinator will identify and describe for the student the setting in which the instruction is to take place and any resources and/or constraints that are pertinent to the tasks to be accomplished.

5.3.3 Determine Strategies and Components for Instruction. This is a key step in the design of the learning experiences for students. Based on the instructional objectives, learner characteristics and setting constraints and resources, an overall instructional strategy is chosen. Examples of such overall strategies include: self-instruction, group based instruction, individualized instruction, self-directed instruction, professor based instruction. Based on this overall strategy, the following components of the instruction are specified:

Human Roles--What will people do in the instruction: lecture, facilitate groups, tutor, act as role models, etc.

Techniques--What instructional techniques will be used: lecture, group discussion, simulation and games, programmed instruction, field trips, etc.

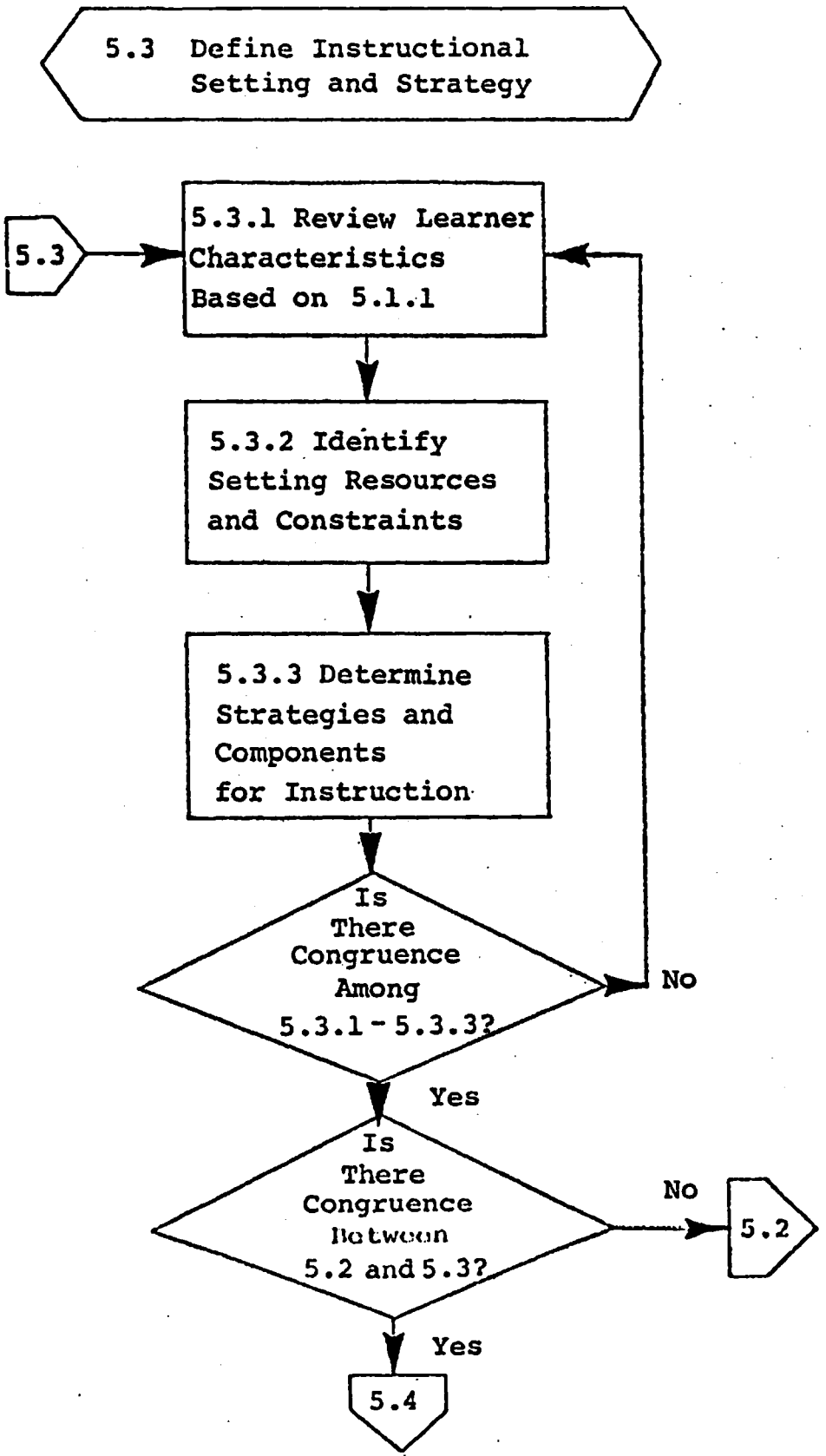
Media/Materials--What non-human materials will be used: textbooks, articles, films, videotapes, slides, audiotapes, overhead transparencies, records, etc.

Facilities--Where will the instruction take place: at GSU (in classrooms, the LRC, learning carrels), at home, at outposts, in the community, at model sites, etc.

Is There Congruence Among 5.3.1-5.3.3? If yes, continue. If no, revise 5.2.1-5.2.3 as necessary for congruence.

Is There Congruence Between 5.2 and 5.3? If yes, continue. If no, revise 5.3-5.2 as necessary for congruence.

Figure I


5.3 Define Instructional Setting and Strategy
5.3
5.3.1 Review Learner Characteristics Based on 5.1.1
5.3.2 Identify Setting Resources and Constraints
5.3.3 Determine Strategies and Components for Instruction
Is There Congruence Among 5.3.1 - 5.3.3?
No
Yes
Is There Congruence Between 5.2 and 5.3?
No
5.2
Yes
5.4

5.4 Develop Instructional Systems Prototype -- Learning Modules

5.4.1 Identify and Develop Human Resources. Based on the human roles specified in 5.3.3, identify specific people who are best qualified to fulfill those roles. Select from among the full range of human resources available: professors, graduate assistants, other students, people in the community, etc. Then bring all people on-board; explain what the purpose of the instructional system is and what their roles are.

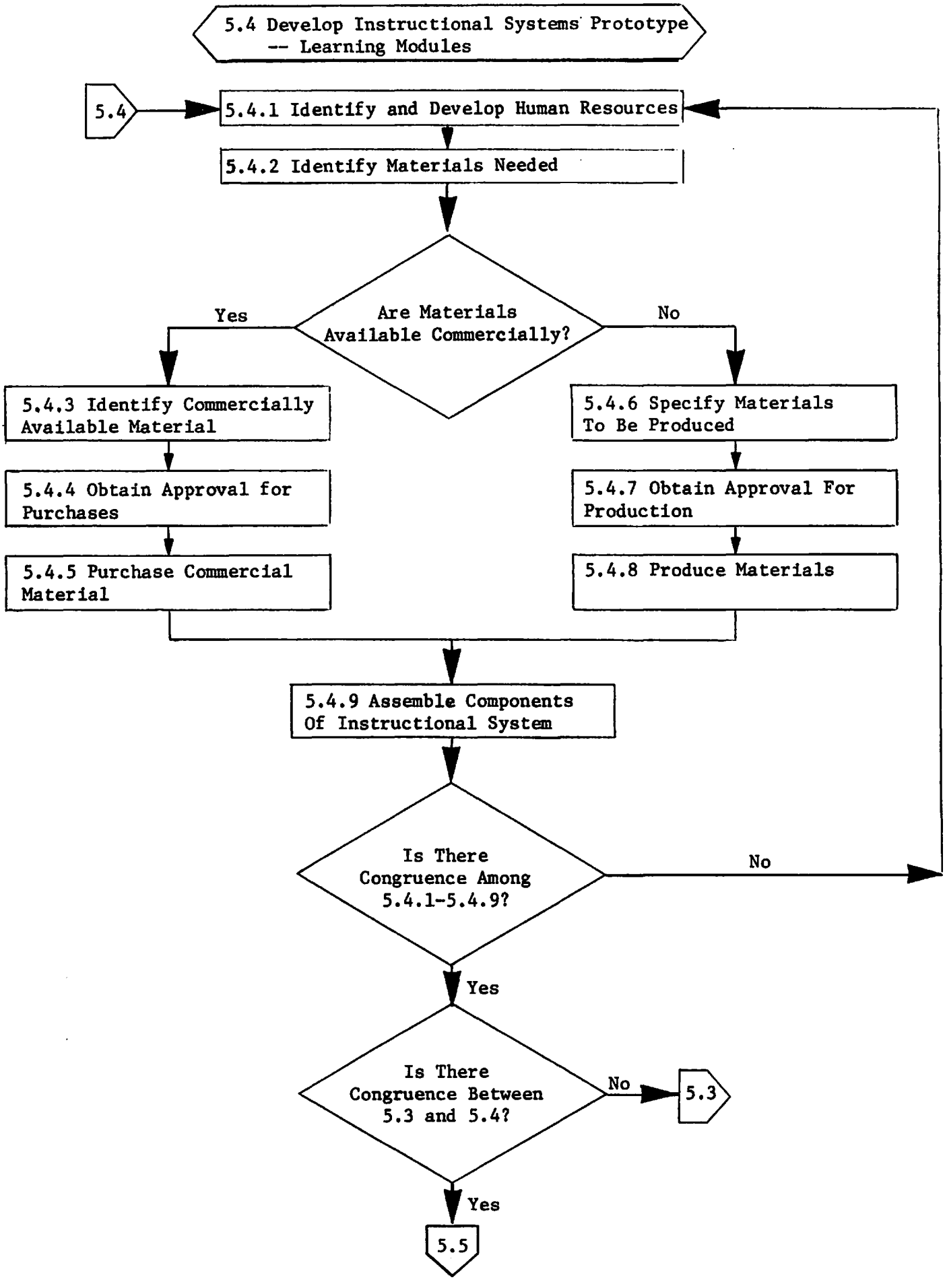
5.4.2 Identify Materials Needed. The Instruction System will probably depend on instructional materials support. These may include videotapes, films, slide-tapes, audiotapes, student guides and workbooks, short text passages, programmed texts, games, etc. The first step in developing these materials is to write specifications which include consideration of the student characteristics, the objectives for the materials, content treatment, etc.

Are Materials Available Commercially? It is likely that some materials which meet the objectives of the instructional system and fit or can be adapted to fit the selected instructional strategies are already commercially available. By and large it is more efficient to purchase commercially-prepared materials than to develop them. Accordingly, a search must be made to ascertain the availability of commercially-prepared components for the instructional system.

5.4.3 Identify Commercially Available Material. Commercially available materials discovered in the initial search should be obtained for preview, and subjected to scrutiny. Those materials that prove satisfactory for the instructional system should be listed, together with information as to producer, publisher and cost.

5.4.4 Obtain Approval For Purchases. At this point considerations other than those directly related to the instructional system come into effect. All instructional systems will be competing for a fixed amount of funds. At this point a decision will have to be made by the appropriate authorities on the extent to which funds will be invested in any particular instructional system. It will be helpful for the instructional developer to produce a "Feasibility Study" or other such document, detailing the expected expenditures for commercially available materials and the anticipated benefit of the system in terms of such factors as the numbers of students to be serviced, the availability of resource people for the students in this particular subject area, and so forth, so that sound decisions can be made on the merits of an instructional system relative to the others proposed. The resulting decision may necessitate changes in 5.2, 5.3, and 5.4.2 above.

5.4.5 Purchase Commercial Material. Once approval has been granted, the commercially available instructional materials should be procured in appropriate quantities needed for the instructional system.


5.4 Develop Instructional Systems Prototype -- Learning Modules
5.4
5.4.1 Identify and Develop Human Resources
5.4.2 Identify Materials Needed
Are Materials Available Commercially?
Yes
No
5.4.3 Identify Commercially Available Material
5.4.4 Obtain Approval for Purchases
5.4.5 Purchase Commercial Material
5.4.6 Specify Materials To Be Produced
5.4.7 Obtain Approval For Production
5.4.8 Produce Materials
5.4.9 Assemble Components Of Instructional System
Is There Congruence Among 5.4.1-5.4.9?
No
Yes
Is There Congruence Between 5.3 and 5.4?
No
5.3
Yes
5.5

5.4.6 Specify Materials To Be Produced. Where there are no satisfactory commercially available substitutes, instructional materials will need to be developed especially for the instructional system. A meeting should be arranged with the coordinator of instructional development and the production staff of the ICC to estimate the costs in terms of time of ICC personnel, and cost of commodities and contractual services for the production of these materials.

5.4.7 Obtain Approval For Production. The same situation is in effect as in 5.4.4. Some document such as a "Feasibility Study" will need to be produced which will detail the projected expenditures on producing instructional materials and the anticipated benefits to the students in terms of such factors as the numbers of students to be serviced, the availability to the students of resource people in that particular subject and so forth. From this information, a sound decision can be made by the appropriate authorities as to the merits of an instructional system relative to the others proposed. The resulting decision may necessitate changes in 5.2, 5.3, and 5.4.2, above.

5.4.8 Produce Media/Materials. At this point, the actual production of the media and materials take place. The production staff develops rough scripts and storyboards which are approved by the coordinator. Then the materials are produced, in rough form, and again subjected to approval. Then the final materials are produced.

5.4.9 Assemble Components of Instructional Systems. The final step in the production of the instructional system is to assemble all the components -- the human resources, the media/materials (purchased and produced), the student guides, etc., into an easily usable format. This may take the form of a package, some materials in the LRC, a listing of resources, or resources the coordinator brings to meetings of the Module.

Is there Congruence Among 5.4.1-5.4.9? This is the evaluation process for system 5.4. It is at this stage that the Coordinator identifies any incongruencies among the steps in the process of developing the Instructional System Prototype. When no incongruencies are present, the Coordinator asks the next question.

Is there Congruence Between 5.3 and 5.4? If the instructional prototype accurately reflects the instructional strategy and setting, the Coordinator proceeds with implementation of the Learning Module. If incongruence is identified, the Coordinator recycles the process beginning with sub-system 5.3.

5.5 Perform Administrative Procedures for Implementing and Testing Learning Modules

5.5.1 Synthesize Components into Module Description for Students. This is the document that will serve as the students' guide for the module. Included in the document should be a description of the student paths through instruction, logistical procedures necessary for the student to avail himself of instruction, a list of required prerequisites, and a schedule of learning events for the module. Also included, of course, should be the instructional objectives for the Learning Module.

5.5.2 Submit Modules for Appropriate Scheduling Procedures. The document prepared in 5.5.1 must next be submitted to the appropriate College and University Channels so that arrangements for module hours, meeting places, etc., can be arranged. Also, this is the stage at which the Dean will grant final approval for listing the module on the formal schedule.

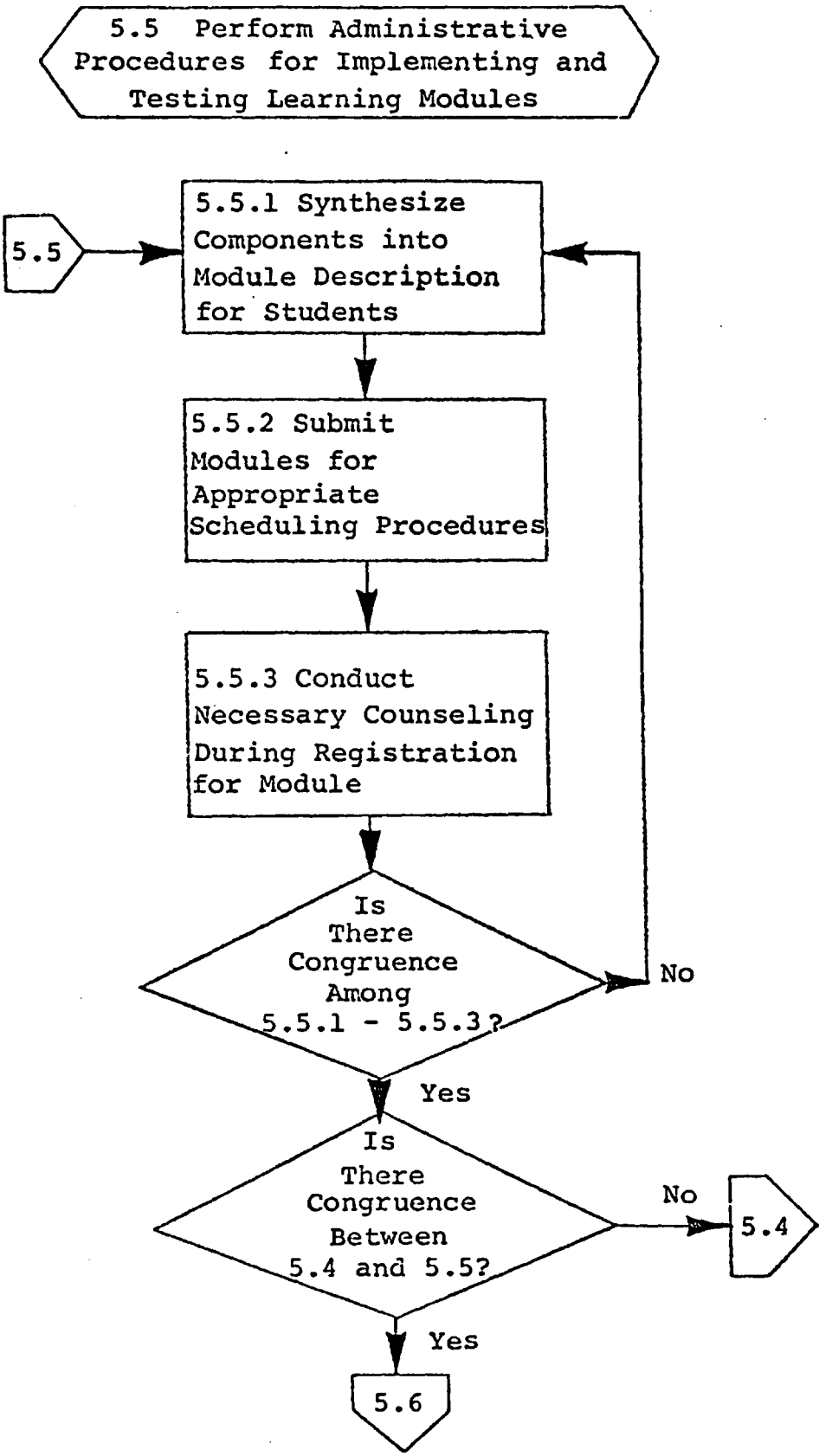
It should also be noted that the Coordinator may be responsible for scheduling certain other logistical arrangements at this time. This would include such things as ordering materials through the bookstore, making arrangements for use of materials through the ICC and LRC, confirming off-campus arrangements, etc.

5.5.3 Conduct Necessary Counseling during Registration Period. The final step prior to implementation involves the counseling of students who are considering enrollment in the Learning Module. It is at this time that the Coordinator can advise students as to the appropriateness of the Learning Module for individual educational goals.

Is There Congruence Among 5.5.1-5.5.3? The Coordinator should identify any inconsistencies within the sub-system 5.5, and recycle accordingly. When no inconsistencies exist, proceed to the next question.

Is There Congruence Between 5.5 and 5.4? If the administrative procedures are in alignment with prior steps in the system, proceed to 5.6. If not, return to 5.4 and make appropriate revisions until congruence exists.

Figure K


5.5 Perform Administrative Procedures for Implementing and Testing Learning Modules
5.5
5.5.1 Synthesize Components into Module Description for Students
5.5.2 Submit Modules for Appropriate Scheduling Procedures
5.5.3 Conduct Necessary Counseling During Registration for Module
Is There Congruence Among 5.5.1 - 5.5.3?
No
Yes
Is There Congruence Between 5.4 and 5.5?
No
5.4
Yes
5.6

5.6 Implement and Evaluate Learning Module

5.6.1 Establish Procedure for Collecting Evaluation Information on Learning Module. Final arrangements should be made concerning the procedure that will be followed to collect evaluative information about the Learning Module. This may involve arranging for peers to visit the module sessions, scheduling videotape sessions, etc.

5.6.2 Conduct the Learning Module. This is the actual conduct of the Learning Module as developed in the preceding sub-systems. The Coordinator should constantly monitor the activities to be sure that implementation is proceeding according to the plan.

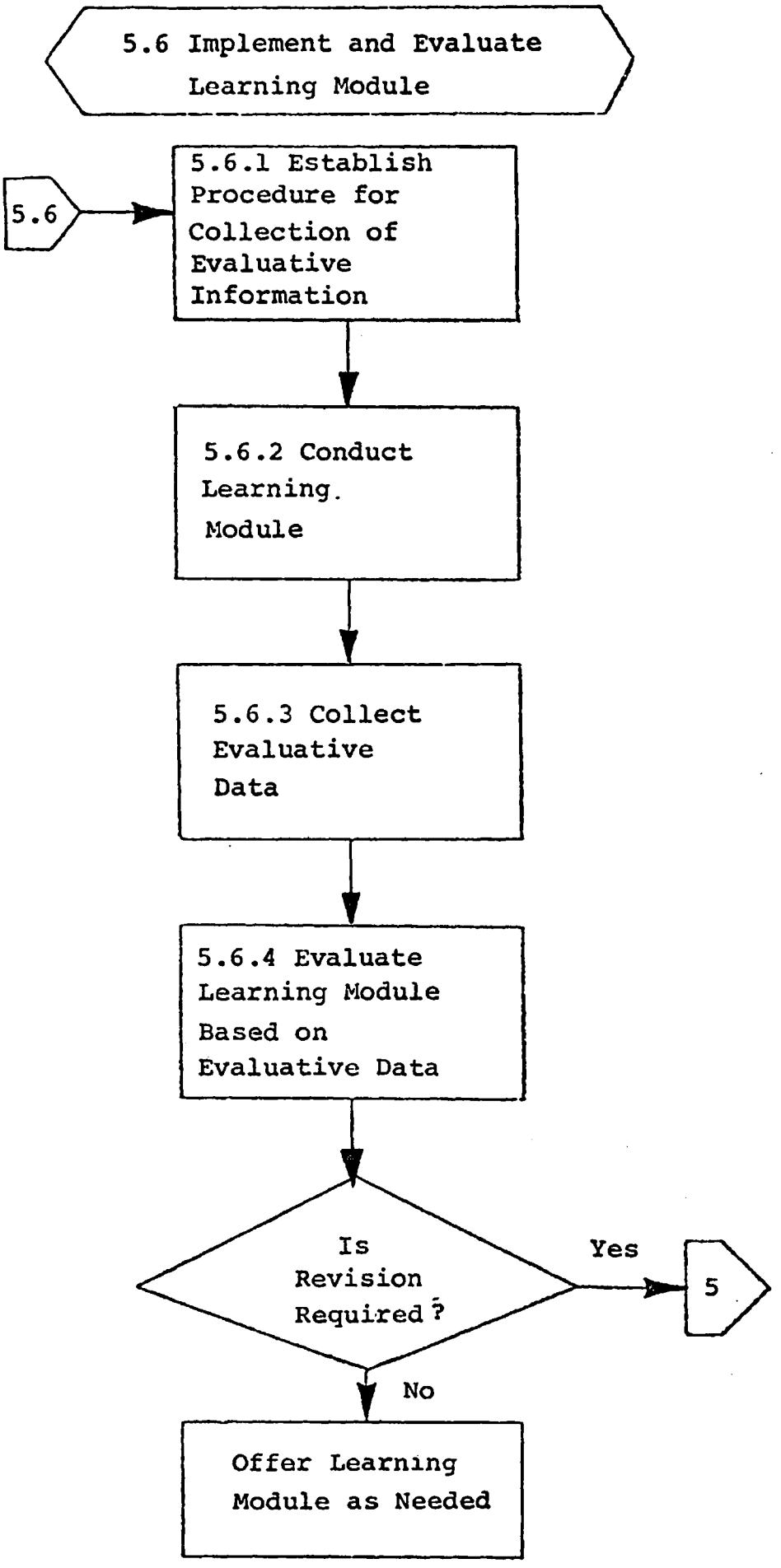
5.6.3 Collect Evaluation Data. During and upon completion of instruction, the Coordinator should collect evaluative data from appropriate personnel. This might involve use of the Student Evaluation of Instruction System and formal comments from colleagues and administrators in addition to the data on effectiveness of instruction as identified in 5.2.

5.6.4 Evaluate Learning Module Based on Evaluative Data. Using the data from 5.6.3, the Coordinator should make evaluative judgments concerning the effectiveness of the Learning Module. This process should be conducted according to the professional judgment of the Coordinator, and in the context of the criteria established in 5.2.

5.6.5 Is Revision Required? If the evaluative data indicate that revision is required, the process should revert to System 5.0 and start over. If no revision is required proceed to the final step of the ISP.

5.6.6 Offer Learning Module as Needed. This is not a statement of an ISP activity, but simply indicates that the process designated by the ISP has been completed. The Learning Module should be repeated as the needs assessment deems necessary.

Figure L


5.6 Implement and Evaluate Learning Module
5.6
5.6.1 Establish Procedure for Collection of Evaluative Information
5.6.2 Conduct Learning Module
5.6.3 Collect Evaluative Data
5.6.4 Evaluate Learning Module Based on Evaluative Data
Is Revision Required?
Yes
5
No
Offer Learning Module as Needed

APPENDIXES

APPENDIX A

EVALUATION DESIGN
for
The Instructional Systems Paradigm

Introduction

To understand the process that will be employed to evaluate the ISP, it is necessary to understand a semantic distinction between "summative" and "formative" evaluation. In the case of the ISP, the essential characteristic of summative evaluation would be that a judgment is made with regard to the effectiveness of the system (and the instruction delivered through the system) after it has been implemented and the instruction has taken place. It is this process of making judgment which produces a great deal of anxiety and defensiveness in the faculty, students, administrators and instructional system designers. Although it is not possible to avoid all summative evaluation, it will not form the basis for evaluation of the ISP.

The term "formative" evaluation was first used by Scriven (1967) in connection with curriculum revision and has since been popularized by Bloom, Hastings, Madaus (1971) and others. These evaluators point out that once a system has been put in its final form, everyone connected with it resists evidence which suggests major alterations. It is their view that formative evaluation involves the collection of appropriate evidence during the construction and trying out of a new system in such a way that revisions can be based on this evidence. It is within this framework that the ISP will be evaluated. The Instructional Systems Paradigm, as recommended for implementation, is viewed as a system in the process of development. Evaluation will be "formative," and evaluative evidence will be incorporated into revisions in the system.

The Evaluation Process

Figure 1 represents graphically the nature of systems analysis as employed in the development of an Instructional Systems Paradigm for Governors State University.

DESIGN LOOP

Analyze Situation and Identify Problem (ISP Task Force). This is the first step in the development of the ISP. The process used to analyze the situation and identify the problem originated in SCEPP. This was followed by the Research & Innovation Wing creating an ISP Task Force which was charged with the formal task of identifying and solving the problem. Generally speaking, the problem identified by the Task Force was that no systematic University-wide model existed for development of curriculum at GSU. The Task Force objective was to design a system, which, when completed, would "serve as the primary and substantive model and guide for curriculum design and development processes in each of the Colleges, where the unique characteristics of collegial programs will be correlated with University-wide mandates." (From Minutes of University Assembly, September 7, 1972)

Design a Tentative Solution to the Problem (ISP Task Force). The procedure employed to design a solution to the problem is based upon Kaufman (1972) and is well documented in the Minutes of the ISP Task Force.

Evaluation of Tentative Solution Design by ISP Task Force (ISP Task Force). The process employed here can adequately be defined as "Formative evaluation." Before implementation of the ISP is recommended, it is subjected to scrutiny by the ISP Task Force. This takes the form of presentation

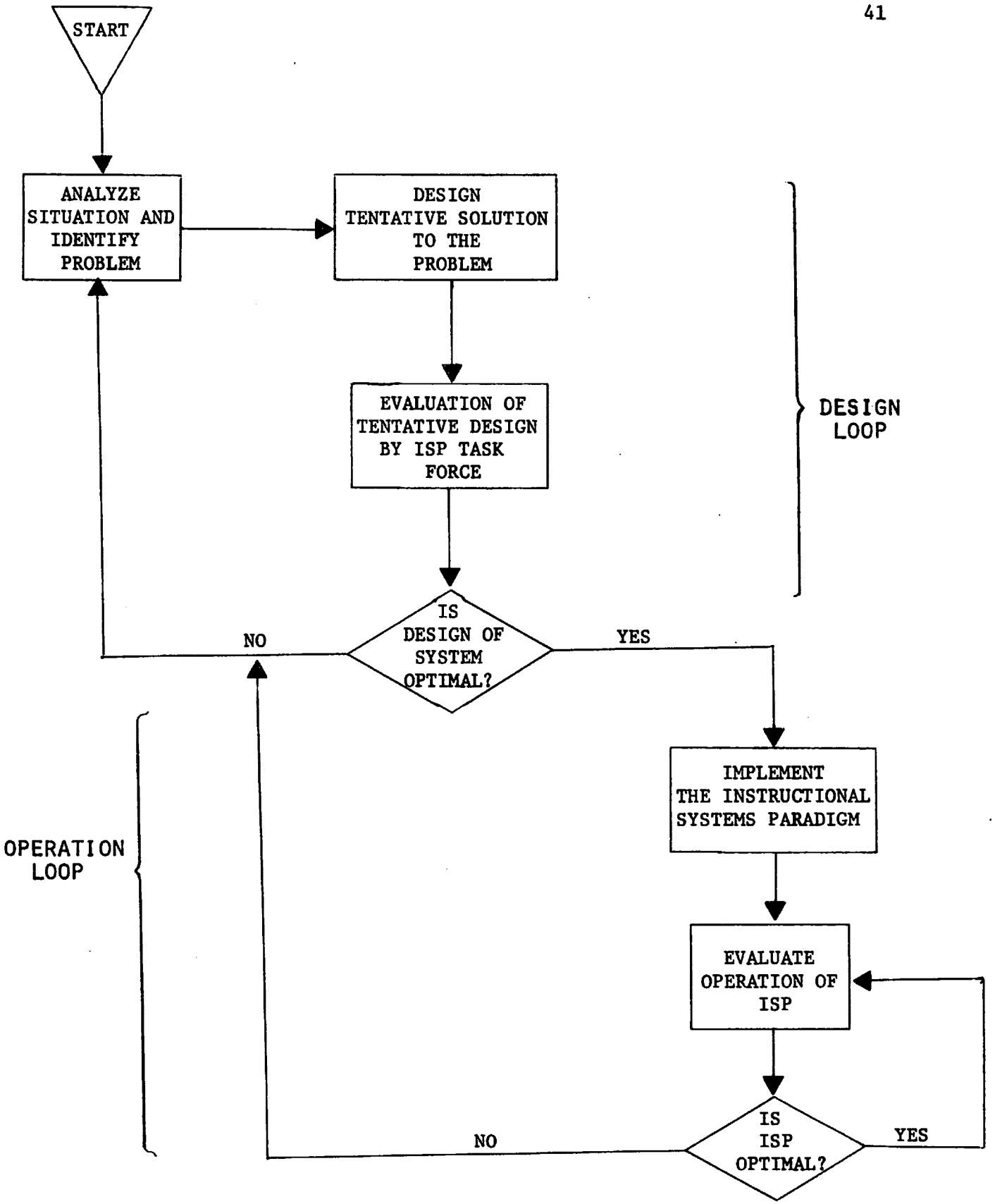


Figure 1
Evaluation Model for Design and Implementation
of the
GSU Instructional Systems Paradigm

of the tentative solution, discussion, necessary corrections made to the solution, presentation of modified solution, etc. The loop consisting of a tentative solution, evaluating the tentative solution, modifying the tentative solution, evaluating the modification, etc., continues until the ISP Task Force agrees on a design that appears optimal. Once what appears to be an optimal design is found, the Task Force leaves the loop.

OPERATION LOOP

Implementation of ISP (ISP Task Force). This step includes the actual use of the system at GSU. As this phase involves a number of steps, it is detailed in Figure 2.

Evaluate Operation of ISP (R & I). The evaluation process for the ISP follows essentially the same loop as that followed in evaluating the tentative design. The primary difference between evaluation of the design and evaluation of the ISP is that the latter involves actual implementation of the tentative solution into the GSU environment. As this evaluation proceeds (Coordinated by R & I), modifications are made to the operating system, reevaluations are made, new modifications are made, and the same type of loop exists as described above.

One point should be noted: not all evaluations need be made in actual operational trials. In fact, the design includes a provision for simulation of the system by members of the ISP Task Force. Further, the system can be tested in various components of GSU, prior to implementation into the entire system.

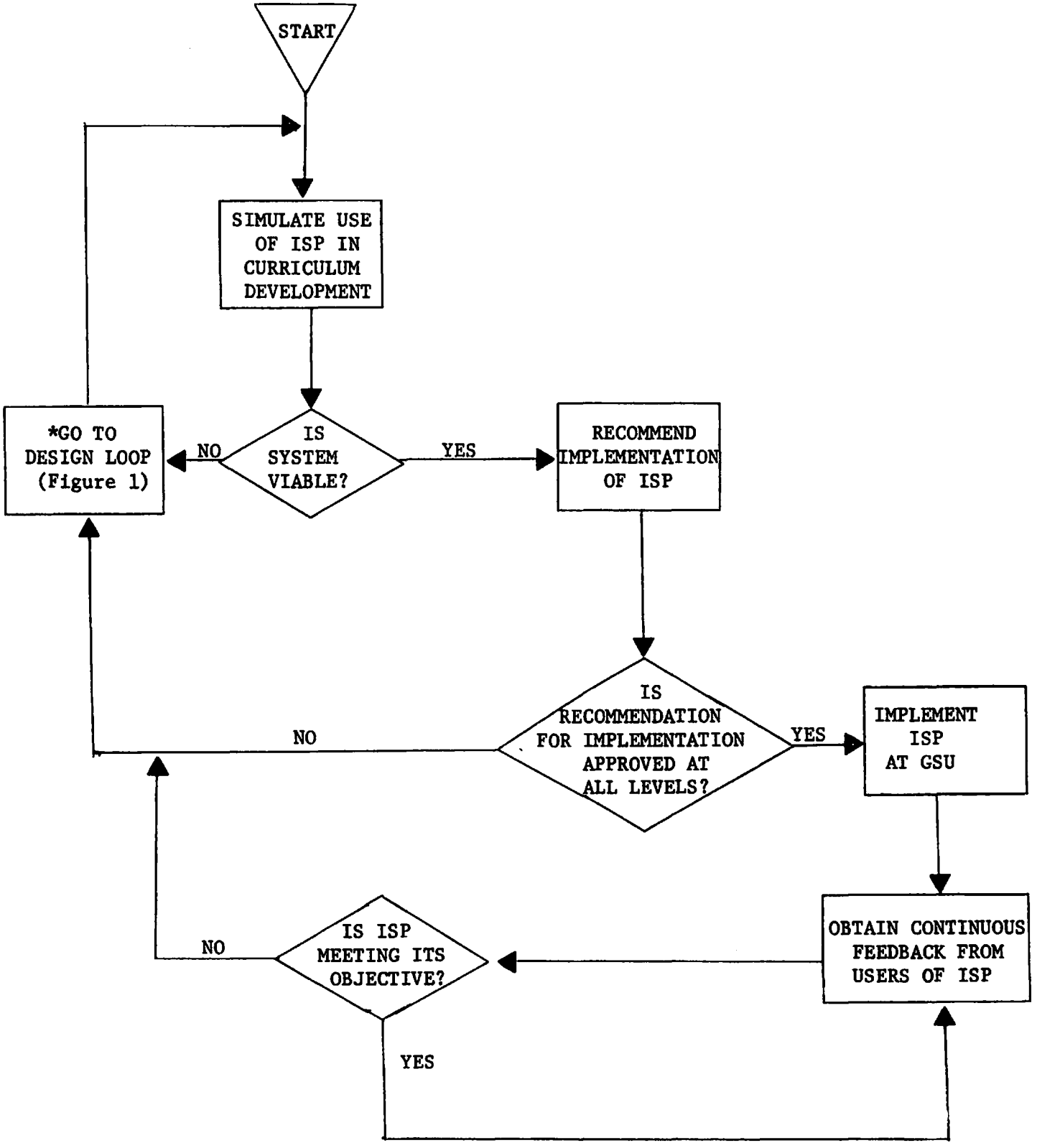


Figure 2
Implementation/Evaluation Procedures for ISP

IMPLEMENTATION/EVALUATION PROCEDURES for ISP

The following procedures are tentatively suggested as the approach for evaluating the operation of the ISP.

Simulate Use of ISP in Curriculum Development. As an initial test for the ISP, the Task Force will simulate the development of a Learning Module by following the procedures outlined in the ISP. This will provide an opportunity for the Task Force, as a group, to make final refinements and clarifications in the system.

A second test for the ISP, will involve each member of the Task Force individually. In this instance, each member will develop the Learning Module for which he/she will be primarily responsible during the S-O 1973 Session. This will serve to provide R & I with an opportunity to pilot procedures for obtaining feedback from users.

When the Task Force has determined that the ISP is viable, the final documentation will be forwarded to the SCEPP Committee with a recommendation for implementation.

Recommend Implementation of ISP. The letter of transmittal that will accompany the paradigm from the ISP Task Force to SCEPP, will contain the following points: (a) That the ISP Task Force recommends immediate approval (on all levels) of the ISP, (b) that SCEPP schedule a series of hearings concerning the ISP at which time Task Force members will be available to answer questions, (c) that the Academic Wing develop the procedure for expeditious implementation of the ISP, and (d) that the ISP be implemented University-wide beginning with the S-O 1973 Session.

Following the initial year of operation, feedback from the ISP users will serve as the basis for modifications in the system.

Implement ISP at GSU. Following approval on all levels (SCEPP, Assembly, President), the Academic Wing should assume complete responsibility for development of implementation procedures.

Obtain Continuous Feedback from Users. Research & Innovation will take the responsibility for obtaining continuous feedback from ISP users. Operationally, this will consist of interviews, questionnaires, committee reports, etc. Additionally, R & I will provide evaluative feedback to the Academic Wing concerning the extent to which congruency exists between levels of competencies, instructional objectives conform to ISP parameters, and the Colleges are using the system.

Following the initial year of operation, the ISP Task Force will be reconvened to consider the evaluative data. The entire process as outlined in Figure 1 will be used to incorporate suggestions for modification into the design.

Note: All College-Level Objectives are in the process of review and reformulation.

APPENDIX B

COLLEGE-LEVEL OBJECTIVES
(March 1, 1973)

Business and Public Service. The basic objectives of the College of Business and Public Service are to provide learning experiences designed to enable graduates to:

1. Qualify for meaningful positions in business, business education, and public career service.
2. Attain an understanding of administrative science theory and practice in sufficient depth to apply such knowledge effectively in a vocational capacity.
3. Acquire skills and expertise in developing and implementing solutions to problems related to the administrative functions of purposive human organizations.
4. Formulate attitudes which will facilitate the selection and attainment of career and life goals mutually beneficial to himself and mankind.
5. Develop a knowledge of the basic business and governmental functions and provide the opportunity for continued study in several areas of emphasis.
6. Develop an ability in identifying business and public sector problems, obtain relevant information, formulate and test alternatives, and select and implement decisions.
7. Increase his capacity for a rapid and appropriate adjustment to the rapidly changing conditions of our society.
8. Enlarge his understanding of the political, social, and economic organizations and develop a sense of personal responsibilities in order to meet the industrial and business needs of his community.

Cultural Studies. The objectives of the educational programs of the College of Cultural Studies are as follows:

1. to provide sound preparation for employment services.
2. to promote personalization and individual realization.
3. to develop an understanding of the constructs and dynamics of community.
4. to develop an understanding of all men.
5. to recognize the nature both of work and of leisure.
6. to develop a useful service orientation.
7. to develop an understanding of the role of individual citizens in a free society.

APPENDIX B
(Cont.)

Environmental and Applied Science. The basic objectives of the College of Environmental and Applied Sciences are to provide learning experiences designed to enable graduates to:

1. conduct research investigations and/or plan, organize and execute solutions to problems related to environmental quality.
2. utilize the conceptual knowledge of science with adequate breadth to deal with the complex scientific, technological, and human problems which face mankind in the years to come, and with sufficient depth to develop and execute solutions to these problems.
3. demonstrate skills in using the literature of science that will permit access to knowledge acquired through the research, experience, and reflection of others.
4. formulate a value orientation based on the systemic involvement of man in the material world and relate this orientation to scientific activities in which he becomes engaged.

Human Learning and Development.

1. The College of Human Learning and Development has as its major objective the preparation of students who are self-actualizing and professionally oriented. That is, students who understand and can function within the present-day realities of society and the environment, and who develop the skills and competencies necessary to function in a "futuristic" society. Such individuals also have a practical understanding of self and one's relation to others, as well as being concerned with a professionally oriented program producing competencies that result in practical skills useful to society.

2. A second objective of the College is to provide a support system for students in other Colleges in the general areas of human relations, human growth and development, psychology, education, human services, and communications.

3. A third objective is to devise individual programs for students which are specifically tailored in relationship to past experiences and future goals of the students. This includes developing learning experiences which center around modules utilizing performance objectives and terminal behaviors describing successful completion of the module and which include extensive laboratory and field experiences in a reality-based setting.

4. A fourth objective is to create a collegial system which operates openly with concern for students, faculty, and community in a cooperative venture in new approaches to learning.

APPENDIX C

SAMPLE COMPETENCY STATEMENTS

Note: The first step in the development of Competency Statements is the establishment of College-Level Objectives. As many of the College-Level Objectives are currently in the process of reformulation, it follows that Competency Statements are also subject to reformulation. Hence, the Appendix includes only "Sample Competency Statements." The intent of Appendix C is to clarify the definitions stipulated in the Glossary, not to present "model" Competency Statements.

COLLEGE OF BUSINESS AND PUBLIC SERVICE

Sample Competency Statements at Various Levels

INSTRUCTIONAL PROGRAM	AREA OF EMPHASIS	MODULE COMPETENCIES	INSTRUCTIONAL OBJECTIVES
Upon completion of the program the Student will be able to apply factual and theoretical knowledge to comprehend and to respond to meet the appropriate needs of constituents of government and various interest groups affected by the public sector.	Student will be able to make selective decisions with respect to economic development for a chosen region or area through application of knowledge of economic concepts to specific problems of a descriptive nature.	Upon completion of the Module, Student will be able to contribute in an informed manner to future urban economic development, renewal, or planning projects in his/her anticipated occupational capacity.	Each student shall submit an acceptable 5 to 10 page, double-spaced, typewritten essay analyzing the role of urban planners in the U. S. in comparison to Europe and comparing their impact upon the metropolitan economy. The acceptability of the essay will be evaluated with respect to: a. original thinking and comprehension of the learning events upon which the essay is based; maximum earnable value -- 15% b. ability to analyze the problematic nature and the solutions for the issues discussed; maximum earnable value -- 25% c. organization of the material; maximum earnable value -- 15% d. appearance of the written presentation; maximum earnable value -- 10% e. completeness of the written presentation; maximum earnable value -- 15% f. ability to summarize and draw conclusions; maximum earnable value -- 20% for a total passing grade of 70%

COLLEGE OF CULTURAL STUDIES

Sample Competency Statements at Various Levels

INSTRUCTIONAL PROGRAMS	AREA OF EMPHASIS	MODULE COMPETENCIES	INSTRUCTIONAL OBJECTIVES
Invention and Creativity A recipient of a degree from CCS in the Invention and Creativity program will have demonstrated: 1. a broadening of perspectives politically, economically, sociologically, theologically, intellectually, and scientifically. 2. A sensitivity to the human condition. 3. A self-awareness both as individuals and as potential contributors as creative artists. 4. The necessary skills and tools to become productive members of a task-oriented society. 5. New and innovative ways of using skills and tools to define perceptions creatively.	Theatre Production A degree recipient in the Area of Emphasis of theatre production will have demonstrated: a knowledge of the basic principles of theatre production and a working acquisition of basic skills in the major components of theatre production -- acting, directing, scenic environment and creative writing for the stage.	Upon completion of this Learning Module, the Student will be able to: Organize, mount, and present an informal studio program dealing with creative dramatics, exercises, games, and improvisations.	Given the area of creative dramatics, the Student will coordinate three different learning activities, each of which demonstrates activity continuity.

COLLEGE OF ENVIRONMENTAL AND APPLIED SCIENCES

Sample Competency Statements at Various Levels

INSTRUCTIONAL PROGRAM	AREA OF EMPHASIS	MODULE COMPETENCIES	INSTRUCTIONAL OBJECTIVES
A recipient of a degree from CEAS in the Science Program will be able to: 1. use fundamental scientific concepts to interpret environmental systems and to identify environmental problems. 2. apply scientific methodology in the conduct of investigations related to environmental quality. 3. plan and execute solutions to environmental problems through a synthesis of pertinent concepts and methods from the physical, natural, and social sciences. 4. retrieve information from the literature of science and to use this information in the design, evaluation, and interpretation of environmental investigations. 5. formulate a value orientation based on the systemic involvement of people in the material world and relate this orientation to scientific activities in which he/she becomes engaged.	A baccalaureate degree recipient in Environmental Analysis will be able to: 1. utilize information on the distribution, abundance, and interactions of substances in the biosphere, lithosphere, atmosphere, and hydrosphere in interpreting environmental processes. 2. correlate and interpret information concerned with environmental processes when planning an analytical investigation. 3. use empirical methods to obtain and interpret environmental data. 4. utilize principles and theory of physical, chemical, and biological analysis. 5. select and use accepted analytical techniques for qualitative and quantitative measurement of various environmental parameters. 6. retrieve information from the scientific literature and use it in designing experiments and evaluating the quality and relevance of data. (7-11 deleted due to lack of space.)	Upon completion of this Topic, a Student will be able to: 1. employ gravimetric techniques, including weighing, precipitation, filtration, and drying or ignition for quantitative analysis. 2. quantitatively determine a constituent in an environmental sample by gravimetric methods.	During instruction the Student will: 1. explain the principles of operation of an analytical balance, including a modern single-pan substitution balance. 2. operate a single-pan analytical balance. 3. identify the common sources of weighing errors and describe the normal precautions for their minimization. 4. write and balance simple chemical reaction expressions and deduce stoichiometric relationships for them. 5. perform calculations involving gravimetric factors for reactions which produce products which are suitable for gravimetric analysis procedures. 6. describe the techniques and manipulations commonly used in gravimetric laboratory work, including transfer of liquids from beakers, filtration, washing, preparation of crucibles, ignition of precipitates, drying and use of desiccators, evaporation, and digestion.

COLLEGE OF HUMAN LEARNING AND DEVELOPMENT

Sample Competency Statements at Various Levels

INSTRUCTIONAL PROGRAM	AREA OF EMPHASIS	MODULE COMPETENCIES	INSTRUCTIONAL OBJECTIVES
On completion of program, the Student will be able to teach the urban child, utilizing a competency-based approach.	The Student will be able to analyze the basic overriding problems present in the individual members of the community in which he/she has prepared to work.	The Student will be able to apply research techniques to solve theoretical problems, problems related to personal life or problems related to a specific job, and write a research report.	Each Student will be able to use the "Reading Miscue Inventory" to examine, analyze and describe in diagnostic terms a reader's use of available language cues and background information in reading. With this diagnosis the Student is able to plan an effective reading program for the reader. The reader's improvement in using language cues and background information indicates Student's success.

APPENDIX D

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ADDENDUM 1
RECOMMENDATIONS ON IMPLEMENTATION

It is recognized that the University Assembly deals with matters of policy. It is also understood that while policy is the appropriate purview of the Assembly, it is not always easily distinguished from implementation. Recognizing that the distinction is not always clear, the Assembly does, however, strive to deal with matters of policy and to avoid issues of implementation.

While this addendum is not intended to become a "policy on implementation," it is intended to express the sense of the Assembly regarding the importance of the procedures that will be utilized in implementing the Instructional Systems Paradigm. This paradigm affects the very heart of the institution, the curriculum, and hence is of great importance to every aspect of the University. Because of the significance of the ISP and as a corollary, the importance of its implementation, the Assembly has added this addendum as its "sense" of how the proper officials in the University ought to proceed on its implementation.

A number of principles should be stated for the implementation of the document.

1. Matters of curriculum are the concern of faculty, students, administrators and the community. No single group or individual should have control over the determination of curriculum matters.

2. Each college should decide for itself the specific mechanisms to be used to implement the ISP. The determination of these mechanisms should be decided jointly by faculty, students, administrators, and community persons.

3. Although the colleges may vary from one another in the specifics of implementing the ISP, it is also expected that such mechanisms as are employed will be arrived at consensually, or in a spirit of free discussion. The specifics of implementation will not be determined by fiat.

4. If the ISP is adopted by the University Assembly, and subsequently becomes policy, the colleges will not have the option of deciding whether to implement it. The college discussion will hopefully be focused on the best means to implement it.

Briefly stated, the purpose of the ISP is to make the goals of the University, the colleges, programs, areas of emphasis, and learning modules congruent with one another. If this is the goal, then few would take issue with it. The problem, as all admit, is in determining appropriate goals at each level, and in determining congruence with the level above. These will be intellectual problems, and a system for implementation should exist in which the intellect is able to function and consider all of the varying points of view.

Although there may be some variance in specifics, the University Assembly envisions the ISP being implemented in the following ways:

A chronology:

1. University Assembly adopts ISP and forwards it to the President.

2. The President approves the policy, signs it, and sends it to the administrator most responsible for implementation. This administrator will most certainly be the University Vice President for Academic Affairs.

3. The University Vice President for Academic Affairs charges the college deans with implementation at the college level -- the level where the greatest amount of implementation will occur.

4. The deans request the constituency of the college to suggest an implementation procedure for the college. The college implements the ISP consistent with its own programs and procedures.

This implementation statement is consistent with the usual procedures for implementation of policies relating to instruction. The statement reaffirms the responsibility of the colleges to implement University policy.

ADDENDUM 2
INTERCOLLEGIAL PROGRAMS

The Instructional Systems Paradigm does not mention, in an explicit manner, intercollegial programs. However, the curriculum aspects of such programs certainly fit easily within the ISP framework. The financial and administrative aspects of all programs, while crucial to their success are not a part of the ISP document. Those issues must be dealt with elsewhere.

If there is support for intercollegial programs, they are easily adaptable to the ISP model. If there is in fact no intercollegial support, there is not in reality an intercollegial program and the program will fail. However, when there is interest and support, intercollegial programs will easily function within the framework of the ISP.

Intercollegial programs should be conceived as areas of intellectual concern that transcend the educational bounds of a single college. Knowledge is not compartmentalized, and it is altogether appropriate that the teaching expertise necessary to achieve the objectives of a program or area of emphasis reside in more than one college. When such is the case -- when faculty in more than a single college work together to provide the competencies for a program or area of emphasis -- then an intercollegial program exists. Intercollegial programs are treated no differently from other programs or areas of emphasis by the ISP. The difference is that the committees dealing with the program are composed of people from more than a single college.